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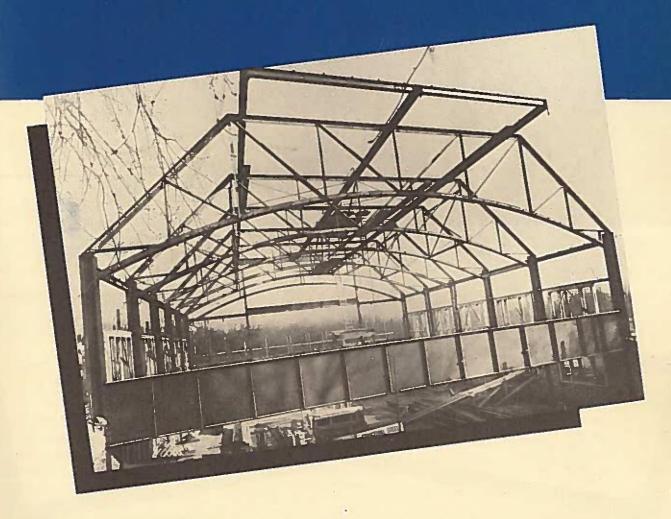
Williams (J.H.) + Co., Buffalo, N.y.

Tools of industry.

C621,9085 W444t 1942



SAXE WELDED ERECTION SYSTEM

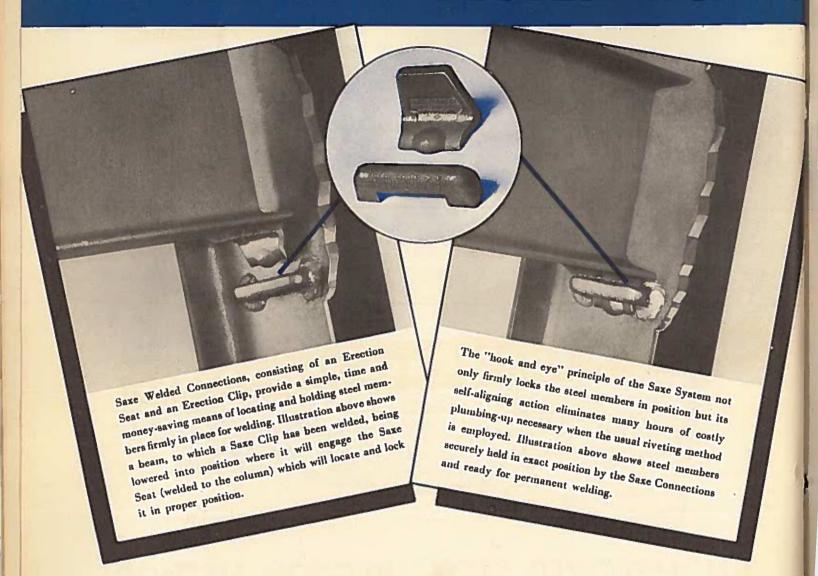


AN IMPROVED STEEL ERECTION METHOD THAT SAVES FROM \$3.00 TO \$5.00 PER TON

The Saxe Welded Erection System provides an economical method of locating and holding structural steel parts that are to be welded. It greatly simplifies welded construction and substantially lowers fabricating costs in practically all types of structural steel work. Widely used in scores of buildings of various types over a 10-year period, it has proven safe and dependable. Since it can be applied to any structure originally laid out for riveting without involving special equipment and with available labor, it is thoroughly practical. It is not only a noiseless method of construction but its simplicity and speed substantially hasten completion dates.

Bulletin No. 2

HOW THE SAXE SYSTEM WORKS



Offers Many Advantages Over Riveting

Economies resulting from the simplicity of the Saxe method are twofold. The first advantages are apparent in the fabrication of steel in the shop. Punched holes in beams and columns, along with rivets, temporary fitting-up bolts and nuts and the connecting of angle plates are all eliminated. Wrenches, drift-pins, wood templates to mark off the holes, and equipment ordinarily used for riveting are unnecessary. Power punches and other heavy Machinery are not required.

Such equipment is replaced by a welding machine, a few clamps, Saxe Erection Connections and welding rod. Two men, a welder and machine attendant, comprise a full crew. Welding eliminates over half the operations usually necessary when fabricating and erecting a riveted job. The second major Saxe method comes in erection of the steel. With many operations eliminated, handling costs are lower. The lining up of rivet holes and application of service bolts are eliminated. When the steel is hooked together with Saxe connections, it is locked in place by a hammer blow on top of the beam and is then ready for the welder.

The Saxe method is so simple and direct that any shop employing qualified welders can turn out a satisfactory and money-saving job.

BUILDING CODES AND INSURANCE COMPANIES APPROVED BY

In the past 15 years welding in the structural field has grown from an experiment to a preferred means of assembly with the endorsement of leading engineers behind it. All structural welding is now done under approved welding codes. Over 300 cities in the United States now have welding codes or similar regulations which give full endorsement to all structural welding done to code requirements within their limits. There are no restrictions as to height of welded buildings which do not apply equally to comparable construction of riveted design. The Saxe method clearly meets the requirements of all existing codes.

A comprehensive manual describing the recommended use of Saxe connections is available.

SAXE SYSTEM HAS WIDE APPLICATION

The Saxe System can be adapted to any assembly where structural steel parts must be located and held for welding. In addition to buildings, aircraft hangars, steel trestles and bridges, the Saxe method is likewise adapted to shipbuilding and the construction of tanks and stacks. It is a particularly suitable method of steel assembly in "zones of quiet" and congested areas.

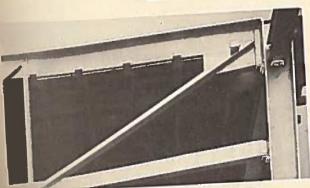
PROVEN TO BE SAFE AND DEPENDABLE

In the past 10 years not a single mishap or failure has occurred thru the use of Saxe connections in building construction. The safety and dependability of welded structures is assured by the high standards of engineering design and workmanship required by approved welding codes. For windbraced or earthquake improved structures, welding produces a far more rigid and resistant frame than rivets, which have been known to work loose under alternating stress conditions. Exhaustive tests indicate that Saxe connections will carry a load of 40,000 lbs. without failure, which is farin excess of any reasonable requirement when assembling steel. Both Seat and Clip remain a permanent part of the assembled structure and, therefore, provide a safety margin in addition to the carrying capacity of the permanent weld itself.

USERS TESTIFY TO SAXE SYSTEM ECONOMIES

"Our first contract at Maryland Training School for Boys, Lockraven, Md., using these Seats, was constructed about 10 years ago and the use of a Seat with a welded frame saves considerable money as compared to the cost of the original frame."

—Davis Construction Co.



TRUSS CONNECTION TO COLUMN

"We have found from experience where welded structural frames are called for, that the welded Erection Seats save considerable cost in erection and plumbing of framing work and increases the speed of erection."

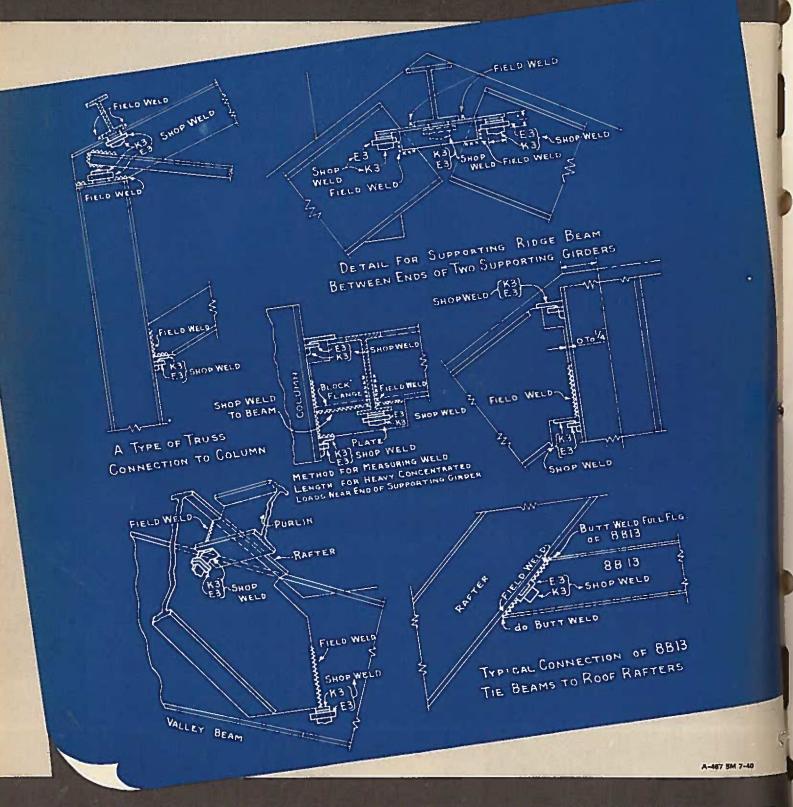
-Cogswell Construction Company.



TYPICAL SAXE CONNECTIONS

TYPICAL ASSEMBLIES

Made With Saxe Welded Connections



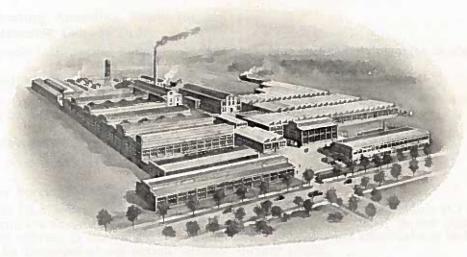
SAXE WELDED ERECTION SYSTEM

J. H. WILLIAMS & CO., 400 Vulcan St., BUFFALO, N. Y.

NOTICE—Due to the National Emergency and Critical Metal Shortage we must reserve the right to substitute both finishes and materials for those listed in this catalog without notice. Discontinued lines will be so marked. Individual discontinued items will be deleted and their reference retained in the Numerical Price Index.



SUPERIOR DROP-FORGINGS AND DROP-FORGED TOOLS



WORKS, WAREHOUSE AND OFFICE - BUFFALO, N. Y.

J. H. WILLIAMS & CO.

ESTABLISHED 1882 — INCORPORATED JULY 1, 1895

GENERAL OFFICES AND FACTORY
400 VULCAN STREET BUFFALO, NEW YORK

SALES AND EXPORT OFFICE: 225 Lafayette St., NEW YORK

DISTRICT SALES OFFICE AND WAREHOUSE:
117 North Jefferson Street, Chicago



Industrial Edition

This Industrial Catalog supersedes all previous issues, which are hereby withdrawn. A separate Catalog covering additional Automotive Service tools is available on request. All Prices are subject to change without notice.

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Furnished to customers; if desired, we will edit copy for printer and check proof.

Dimensions

Unless otherwise stated, all dimensions are in inches.

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We are prepared to electric-weld rounds up to and including 1 1/8 inch diameter; by this means we can supply several of our stock specialties, such as Rod Ends, with shanks of any reasonable length.

Heat-treating, Annealing, Tempering and Case-hardening Done to Order

We have ample facilities for handling work of this class and solicit inquiries therefor.

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Estimates for Special Forgings

Furnished on receipt of model or drawing and specifications, including quantity.

Dies for Special Forgings

Charges for Dies and Tools include only a portion of their cost. We assume the risk of breakage and the expense of repair and maintenance. Tools are fitted to our equipment and are not subject to surrender. When inactive for three years after date of last order, they may be discarded at our option, without further notice.

Guarantee

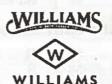
We guarantee all our product, whether Standard Stock goods, as described in this catalog, or Special Forgings made to order, to be free from imperfections of workmanship and material. We will gladly replace, without charge, any which prove defective, but we cannot allow claims for labor or damages.

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Codes: Western Union, Lieber's Standard, Lieber's 5 Letter, "ABC" 5th Edition, Bentley's.

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VULCAN SUPERRENCH SUPERSOCKET



AGRIPPA SUPERECTOR SUPERJUSTABLE

J. H. Williams & Co., originated the first uniform line of fifteen-degree angle Wrenches, since generally adopted.

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CAR	BON	STEEL		CAI	RBON	STEEL		CAR	BON	STEE		CAR	BON	STEE	L
			Finished				Finished				Finished				Finish
S-090	2	.03	\$,28	† 33C	1	1.	\$ 1.10	† 77S	1	.27	\$.68	267H	27	.63	\$ 1.0
S-00	2	.05	.28	34	4	1.4	1.36	† 79		.46	.86	† 267X		.63	1.0
00	2	.07	.28	34A	4	1.4	1.36	† 79A		.46	.86	268A	26	.75	1.3
0	2	.09	.30	35	5	1.4	1.36	† 79B		.46	.86	268D	26	.75	i.
1	2	.13	.36	36	5	2.2	1.92	† 79C		.46	.86	26811	27	.75	1.3
2	2	.22	.44	37	5	2.2	1.92	† 79D		.46	.86	268P	27		
3	2	.32	.52	37A	5	2.	1.92	† 79E		.46				.75	1.
4	2	.44	.64	38	5	2.0	2.80	† 795	**		.86	269A	26	1.	1.
5	2	.65	.76	38A	5	2.9	2.80			.46	.86	26911	27	1.	1.
6	2	.86	.92	39	5	2.9	2.80	† 81		.72	1.10	270A	26	1,3	1.
6A	2	.86	.92	39A	5	2.7		† 81A		.72	1.10	270D	26	1.3	1.
7	3			37/4	0	2.1	2.80	† 81B		.72	1,10	270H	27	1.8	I.
		1.4	1.14	40				† 81H		.72	1.10	270S	26	1.3	1.
8	3	2,2	1.50	40	5	3.7	3.80	† 83		1.	1.40	† 270X		1.3	1.
8A	3	2.2	1.50	40A	5	3.7	3.80	† 83A		I.	1.40	271A	26	1.7	1.
9	3	2.7	2.30	41	5	3,5	3.80	† 83B	1	i.	1.40	271D	26	1.7	1.
				42	5	5.5	5.30	† 83C		1.	1.40	271H	27	1.7	1.
10	3	3.7	3.20	42A	5	5.5	5.30	† 83D	1	1.	1.40	† 271X		1.7	1.
10A	3	3.7	3.20	42B	5	5.5	5.30	† 83J		1,	1,40	273A	26	2.7	2.
11	3	4.5	4.20	43	5	5.5	5.30	† 85		1.7	2,00	273B	26	2.7	2
11A	3	4.5	4.20	44	5	7.8	7.20	† 85B		1.7	2.00	273H	27	2.7	2
12	3	6.	5.70	44A	5	7.5	7.20	† 85C	1	1.7	2.00	274H	27	3.2	2
12A	3	6.	5.70	45	5	7.7	7.20	† 85J	1	1.7	2.00	† 274X		3.2	2
13	3	7.8	7.30	46	5	9.5	10.50	† 85K		1.7	2.00	275A	26	3.9	3
13A	3	7.8	7.30	46A	5	9.5	10.50	1 0014		***	2.00	275D	26	3.9	
14	3	9.9	9.20	47	5	9.5	10.50				Hard.				3
141	3	9.9	9.20	47A	5	9.5	10.50	201	18	.28	.75	276A	26	4.8	3
15	3	11.5	11.20	48	5	13.		201A	18	.28	.75	276B	26	4.8	3
15A	3	11.5	11.20	49			14.00	201B	18	.28	.75	276H	27	4.8	3
				49	5	12.7	14.00	202	18	.28	.75	277A	26	6.1	3
16	3	14,3	13,40					203	18	.52	.95	277B	26	1.6	3.
16A	3	14.	13.40	50	5	13.2	18.00	203A	18	.52	.95	† 277N		6.1	3
16B	3	14.3	13.40	50 A	5	13,5	18.00	204	18	.52	.95	277P	27	6.1	3
17	3	20.	20.50	50B	5	13.2	18.00	204A	18			277X	27	6.1	3.
17A	3	20.	20.50	51	5	14.7	19.80			1.	.95	278A	26	8.2	4.
18	3	28.6	29.50	52	5	16.7	22.00	205	18	1.	1.20	† 278P	0.	8.2	4
18A	3	29.	29.50	53	5	18.	24.00	205A	18	1.	1.20	279A	26	10.	6
19	3	34.5	42.00	54	5	24.	28.50	206	18	1.	1.20	279B	26	10.	6
19A	3	34.	42.00	54A	5	24.5	28.50	20613	18	1.	1.20	† 279X		10.	6
19B	3	34.5	42.00	54B	5	24.	28.50	207	18	1.8	1.55	280A	26	12.5	
19C	3	34.	42.00	55	5	24.	31.00	207A	18	1.8	1.55	† 280X			8
				56	5	31,	40.00	208	18	2.7	2.05	1 200A		12.5	8
20	3	52.	62.00	56A	5	31.5	40.00	208A	18	2.7	2.05	245			Hai
20 A	3		62.80					209	18	3.6	2.70	367	20	1.5	1
20 B		48.5		57	5	34.	47.00	209A	18	3.6	2.70	367A	20	1.5	ı
	3	52.	62.00	57A	5	38.7	56.00	210	18	5.1	3.60	370	20	2.6	2
21A	3	95.	114.00	57B	5	33.5	47.00	210A	18	5.1	3.60	† 370A		2.6	2
21B	3	94.	114.00	57C	5	39.	56.00	211	18	7.	5.30	370B	20	2.6	2
2tC	3	85,5	114,00	58	5	45.	62,00	211A	18	7.	5,30	† 371		3.5	3
22A	3	167.	204.08	58A	5	46,	62.00	212	18	7.	5,30	372A	20	3,5	3
22B	3	156.	204.00	59	5	42.5	62.00	212	10		3,00	373	20	3.5	3
21	4	.08	.34	59A	5	43.	62.00				Finished	† 374		4.1	3
22	4		.42	60	5	40	75 00	26011	27	.04	.54	376	20	4.1	3
		.11				48.	75.00	261A	26	.05	.60	377	20	4.8	4
23	4	.15	.42	60A	5	48.5	75.00	26111	27	.05	,60	378A	20	4.8	4
24	4	.18	.50	61	5	66.	94.00	261J	27	.05	.60	379	20	4.8	4
25	4	.23	.50	6tA	5	66.5	94.00	262D	26	.15	.66	† 380		5.4	
25A	4	.23	.50	62	5	66.5	94.00	26211	27	.15			20		5
26	4	.30	.62	62A	5	66.	94.00	263A			.66	382	20	5.4	5
27	4	.34	.62	63	5	95.	135.00		26	.17	.72	† 383		6.	6
† 27C		.34	.62	64	5	113.5	155.00	263D	20	.17	.72	383B	20	G.	6
28	4	.40	.74					26311	27	.17	.72	† 385		6.	6
† 28S		.40	.74	† 75		.20	.54	264A	26	.20	.78	387	20	8.5	9
29	4	.49	.74	† 75A		.20	.54	265A	26	,32	.88	† 389		8.5	9
			0.000	† 75B		.20	.54	2651)	26	.32	.88				No
30	4	.61	.90	† 75C		,20	.54	26511	27	.32	.88				Mac
31	4	.76	.90	† 77		.27	.68	266D	26	.44	.96	403	22	.13	
	4	1.	1.10	† 77B		.27	.68	26611	27	.44	.96	404	22	.26	
32															
33	4	1.	1.10	† 77C		.27	.68	267A	26	.63	1.08	405	22	.34	

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Wrench	Page	Weight Each,	List	Wrench	Page	Weight Each,	List	Wrench	Page	Weight Each,	List		Page	Weight Each,	Lis
No.		Lbs.	Price	No.		Lbs.	Price	No.		Lbs.	Price	No.	16	Lbs.	Pric
"ALWA	YS	READ	Y"			NCHES				NCHES				NCHES	
			Finished	(Chrom	e-Afa	lybdenun	ı) Finished	(Chrom	e-110	lybdenum 1	inished	(Chrom)	2+1+1 O	lybdenun	n) Finish
		Per		† 1006A			\$ 1.50	† 1083B	1	1.		1206B	35		\$ 1.
		Doz.		+ 1007		1.5	1.88	† 1083J		î.	2.30	1207	35	1.8	2.
1	30	4.4	\$ 1.25	+ 1008	1.	2.2	2.50	† 1083K		i.	2.30	1207A	35	1.8	2
2	30	٥.	1.55	† 1008A	1	2.2	2.50	† 1085		1.7	3,30	1208	35	2.7	3.
† 2 1/2	0000	20.	2.40	† 1009	1	2.8	3.80	† 1085B		1.7	3.30	1208A	35	2.7	3.
3	30	32.	3.50	† 1010		3.9	5,30	† 1085C		1.7	3.30	1209	35	3,6	4.
† Bull T.		3.7	.75	† 1010A		3.9	5.30	† 1085H		1.7	3.30	1209A	35	3.6	4.
		2 . 10		+ 1011		4.8	6.90	† 1085J		1.7	3.30	1210	35	5.1	6
				† 1011A	1	4.8	6.90	† 1085K		1.7	3.30	1211	35	7.	10
"Bt	JLL	DOG"		† 1012		6.2	9.40	1990	43	.09	.76	1212	35	7.	10
	1		Finished	† 1012A		6.2	9.40	1090A	43	.09	.76		11.		
		Dos.	2 Manager	† 1013		8.	12.15	1090B	43	.09	.76	† 1471	**	.28	3
1	30	3.	\$.45	† 1013A		8.	12.15	1090C	43	.09	.76	† 1472	**	.54	3
1 1/2	30	3.5	.75	† 1014	1.	10.	15,30	1090D	43	.19	.76	† 1474		.94	4
1 3/4	30	7.5	1.10	† 1014A		10.	15.30	1090E	43	.19	.76	1519	71	.08	1
2	30	0.	1.20	10215	32	.09	.58	1090F	43	.19	.76	1520	71	.57	2
2 1/2	30	16.5	1.85	1021	32	.09	.58	1092	43	.22	.82				
3	30	38.	2.80	† 1022	200	.12	.69	1092B	43	,22	.82	† 1700		.09	
3 1/2	30	48.	3.70	1023	32	.12	.69	1092C	43	.22	.82	† 1701		.13	
4	30	97.	5.60	† 1024	0.0	.18	.82	1092D	43	.22	82	† 1702		.22	
4 1/2	30	128.	8,50	1025	32	.18	.82	1092F	43	.22	,82	† 1703		,33	
5	30	158.	11.00	† 1025A		.18	.82	1094	43	.34	,88	† 1704	**	.48	1
Twin	30	13.5	1.90	† 1026	1	26	1.00	1094A	43	.38	.88	† 1705	11	.65	1
				1027	32	.26	1.00	1094B	43	.38	.88	† 1706		.02	- 1
				1027C	32	.26	1.00	1094D	43	.34	.88	† 1797	4.1	1.5	1
				† 1028		.37	1.24	1094F	43	,34	.88	† 1709		2.7	3
		ABLE		10285	32	.37	1.24	1094G	43	,34	.88	4624	32		
Carbo	on W	renche		1029	32	.49	1.24	1096	43	.41	1.06	1721	32	.08	
		Ench	Finished	† 1030		,49	1.24	1096A	43	.47	1.06	† 1722 1723	32	.10	
† 4 in.		.13	\$ 1.05	1031	32	.66	1.65	† 1096B		.47	1,06	1723 1723A	32	.10	
† 6 ln.	1.1	.31	1.05	† 1032		.79	1.65	† 1096F		.41	1.06	1725	32	.11	
† 8 ln.	4.	.63	1.30	1033	32	.79	1.65	109611	43	.41	1.06	† 1725A		.16	
† 10 ln.		1.06	1.60	1033A	32	.79	1,65	1106	44	.02	.65	1725B	32	.16	
† 12 in.		1.94	2.45	1033C	32	.80	2,25	1107	44	.02	.65	† 1726		.26	1
† 15 in.		4.19	3.30	1034	32	1.2	2.25	1108	44	.03	.72	1727	32	.26	i
† 18 in.	100	6.88	4.80	1034A	32	1.2	2.25	1109	44	.03	.72	† 1728		.37	i
			1	1935	32	1.2	2.25	1112	44	.01	.65	1729	32	.37	i
HELIPE	D 111	STABL	E	† 1036	44	1.7	3.15	1113	44	.01	.65	† 1730		.49	i
		enches	"	1037	32	1.7	3.15	1114	44	.01	.65	1731	32	.6	1
Acteu	,	· ·	125. 1.1. 1	1037A	32	1.7	3.15	1115	44	.01	.65	1731A	32	.6	1
		00	l'inished	† 1038		2.1	4.90	1116	44	.01	.65	1731B	32	.G	1
4 ln.	31	,09	\$ 1.30	1039	32	2.2	4,90	1118	44	.03	.72	1731BR		.98	4
6 In.	31	.23	1.30	1039A	32	2.2	4.90	1120	44	.03	.72	† 1732	14.	.79	1
8 In.	31	.47	1.60 2.05	1040	32	2.2	4.90	1122	44	.04	.72	† 1732A		.70	1
10 in.	31	1.41	2.95	1041	32	4.1	8.80	1124	44	.04	.72	1733	32	.89	2
12 in. 15 in.	31	3.22	4.45	† 1075		.20	.93	1128	44	.07	.82	† 1734		1.2	2
15 in. 18 in.	31	6.	7.35	† 1075A	1	.20	.93	1132	44	.07	.82	1735	32	1.7	3
10 111.	31	0.	1.33	† 1075B		.20	.93	1160	41	.08	1.15	1735BR	42	1,86	5
	1	1	1.2	† 1077		.27	1.18	1161	41	.09	1.18	† 1736	4.4	1.7	3
		NCHE		† 1077B		,27	1.18	1162	41	.13	1.28	† 1736A		1.7	3
(Chrom	e-Mo	lybdenui	n)	† 1077C		.27	1.18	1163	41	.21	1.40	1737	32	1.7	3
			Finished	† 1077E		.27	1.18	1164	41	.28	1.55	† 1738		2.3	4
A-100	42	.25	\$ 1.18	† 1077S	1.0	.27	1.18	1165	41	.38	1.70	† 1739		2.3	4
A-100A	42	.25	1.18	† 1079	1.	.46	1.45	1166	41	.5	1.85	† 1739A		2.3	1 4
A-100B	42	.25	1.18	† 1079A		.46	1.45	1167	41	.75	2.00	† 1739B		2.3	4
A-100C	42	.25	1.18	† 1079B		.46	1.45	1167A		.75	2.00	HES, THE			
A-101	42	.31	1.27	† 1079C		.46	1.45	1168	41	1,13	2.15	1800A	37	.07	
† 1000		.07	.47	† 1079E	4.4	.46	1.45	1170	41	1.13	2.15	1801	37	.11	
1000A		.09	.47	† 10795		,46	1.45	1171	41	1.75	2.40	1802	37	.19	11
1001		.13	.56	† 1081		.72	1.75	1173	41	2.56	2.90	1802A	37	.19	
1 1002		.22	.70	† 1081A	1.1	.72	1.75	1176	41	3.88	3.45	1803	37	.31	1
† 1003		.33	.85	† 1081B	1.	.72	1.75	1203	35	.52.	1.43	1803A	37	.31	1
† 1004		.48	1.05	† 108111		.72	1.75	1203A	35	.52	1.43	1804	37	.36	1
		.65	1.25	† 1083		1.	2.30	1205	35	1.	1.86	1804A	37	.36	1
† 1005	25.5						2.30	1205A			1.86	1805	37		1

ARRANGED NUMERICALLY

Wrench No.	Page	Weight Each. Lbs.	List Price	Wrench No.	Page	Weight Each, Lbs.	List Price	Wrench No.	Page	Weight Each, Lbs.	List Price	Wrench No.	Page	Weight Each, Lbs.	List Price
		NCHES lybdenun				NGHE! lybdenur				NGHES		"SUP	ERSO	CKETS	••
1805A	37		\$ 1.40	+ 7034A	1 0		\$ 2.95	8910	36		\$ 5,15	† B-21	1	.56 [4.5
1806	37	.68	1.70	1 7037	1.4	1.8	3.30	8911	36	5.88	5.50	B-30	50	.5	1.5
1806A	37	.68	1.70	1 7037A		2.4	3.80	8912	36	6.51	5.85	SB-30	53	.14	1.0
1806B	37	.68	1.70	7039	38	2.4	3.80	8913	36	8.41	7.65	B-40		-	
1807	37	.89	2.05	7039A	38	2.4	3.80	8914	36	9.5	8.65	S-40	50	.57	2.7
1807A	37	.89	2.05			100 100	20000	8924	45	.26	1.15		53	1.4	3.9
1808	37	1.5	2,60	4	20	.11	.80	8928	45	.26	1.15	SB-40	53	.16	1.3
1808A	37	1.5	2.60	7723 7725	38	.13	.95	8930	45	.26	1.15	II-41	58	4.63	6.1
1809	37	1.9	3.50	7725B	38	.16	.95	8932	45	,25	1.15	H-41B	58	2.	1.10
1809A	37	1.9	3.50	7727	38	.31	1.00	8934	45	.22	1.15	S-41	53	1.9	4.5
1810	37	2,9	4.70	7727A	38	.48	1.20	8936	45	.22	1.15	B-42	50	.61	2.7
1810A	37	2.0	4.70	7729	38	.48	1.20	9723	39			B-42B	50	.15	.4
1811	37	3.1	6.20	7729A	38	.66	1.49	9725	39	.10	.95	NM-42	48	.25	1.4
1811A	37	3.1	6.20	7731A	38	.66	1.40	9725B	39	.10	1.00	NM-42B	48	.08	.2
1812	37	4.3	8.05	7731B	38	.66	1.55	9727	39	.20	1.00	S-42	53	1.8	3.9
H-1808	37	1.6	3.45	† 7733		.94	1.85	7/4/	98	.20	1.10	S-42B	53	.35	.6
II-1808A	37	1.6	3,45	1 7735	4.4	2.	3.30	"SUPE	RREN	CH" S	ETS			0.000	
11-1809	37	2.3	4.65	7735A	38	2.	3.30			olybdenu		B-50	50	.43	3.6
II-1809A	37	2.3	4.65		1	110.00		MIT TO			Finished	B-50A	50	.43	3.6
11-1810	37	3.1	6.25	7737	38	2.4	3.80	106	42	1.82	\$ *7.85	B-50B	50	,43	3.3
H-1810A	37	3.1	6.25	8021	39	-18	.80	108	42	2.08	*10.30	11-59	58	5.3	10.5
11-1811	37	3.8	8.25	+ 8023		.37	.95	† 1001		69.	154.60	S-50	53	1.3	4.5
II-1811A	37	3.8	8.25	8025	39	.43	1,00	1001A	62	69.	152.50	NX-50	60	6.3	16.2
H-1812	37	5.4	10.70	† 8029		.84	1.35	1025	33	2.7	*8.65	B-51	50	.44	4.5
11-1813	37	6.5	13,55	8033	39	1.3	1.65	1140	44	.39	7.45	B-51A	50	.44	4.5
H-1813A	37	6.5	13.55	8033C	30	1.14	1.85	1140P	44	.5	9.30	NM-51	48	,16	4.0
II-1814	37	7.8	16.90	† 8034		1,3	2.95	1148P	44	.23	5.15	S-51	53	1.4	6.7
H-1815	37	10.3	28.05	† 8034A		1.3	2.95	11685	41	.8	5.40	S-57	53	3.68	26.0
H-1815A	37	10,3	28.05	† 8037		2.1	3.30	11695	41	1,69	8.95	B-108	50	.16	1.0
11-1816	37	12,5	40.28	† 8037A	1.1	3,3	3.80	† 1284		1.29	9.72	NM-102	48	.06	.8
II-1817	37	16.3	55.00	8039	39	3.3	3,80	† 1284P		1.36	11.64	B-110	50	.23	1.0
II-1817A	37	16.3	55.00	8039A	39	3.3	3.80	1285	49	1.29	9.70	11-110	58	1.5	2.7
1903	35	6.3	1.68	8041	39	5.79	4.95	1285P	49	1.36	11.55	NM-110	48	.34	1.4
1903A	35	6.3	1.68	8045	30	8.43	8.45	† 1290		1.45	14.00	† S-110		.81	1.8
1905	35	1.2	2,25	† 8048		9.88	9.80	† 1290P	1.	1.53	15.85	S-110P	53	.53	1.2
1905A	35	1.2	2,25	8049	39	10.29	10.60	1291	49	1.45	14,00	NX-110	60	3.68	
1906	35	1.2	2.25	8053	39	14,65	16.25	1291P	49	1.53	15.85	B-115	50		5.2
1907	35	1.9	3.15	† 8128		.27	1.35	† 1400		1,93	*12.10	H-115	58	2.8	1.2
1907A	35	1.9	3.15	† 8132	1	.39	1.45	† 1712	1 ,,	2.87	*30.20	NM-115	48	.17	3.3
1908	35	2,8	4.25	† 8136		.5	1.55	6703	40	.41	3.05	† S-115	100		2.1
1908A	35	2.8	4.25	† 8140	4.0	.61	1.65	† 7006		3,06	7.60	S-115P	53	1.3	
1909	35	4.1	5.85	† 8148		.86	1.80	† 8005		4.29	8.10				1.6
1910	35	5.6	8.10	8723	39	.26	.95	† 8006		3.54	7.60	NX-115	60	7.08	6.4
1911	35	7.9	12,25	8725	39	.37	.95	† 8105	41	2.01	7.80	BM-130	50	.05	.9
1912	35	7.9	12.25	8725B	39	.43	1.00	9703	40	.7	3.05	BS-130	50	.13	1.0
† 1999	705		100000000000000000000000000000000000000	8727	30	.59	1.05	"SITP	ERSC	CKETS	201	IINX-130	58	1,69	1.5
		1.2	4.00	8727A	39	.8	1.20	MR-2	65	.025		HX-130	58	.59	1.5
2273	43	2.7	4.80	8729	39	.8	1.20	MR-4	65	.034		MM-130	48	.02	.5
2274	43	3.9	5,40	8729A	1	1.	1.40	MR-6	65	.063		SH-130	53	.31	1.2
2276	43	4.8	6.50	8731A	39	1.	1.40	MR-8	65	.003		XX-130	60	1.17	3.3
2277	43	6.1	7.75	8731B		1.	1.40	MR-10	65	.125		BS-131	50	.15	1.0
2278	43	8.2	9.25	† 8733		1.4	1.85					MM-131	48	.03	
2279	43	10.	11.00	1 8735		2,3	3.30	† S-10	62	1.8	2.70	XX-131	60	.93	3.
2280	43	12.5	14.00	8735A		2.3	3.30	S-10P	53	1.8	2.70	B-140	50	.13	2.
2280A	43	12.5	14.00	8807			4.75	F-15	50	1,1	2.10	H-140	58	1.2	7.
6723	38	.08	.95		36	2.15		MR-15	65	.075	1.00	S-140	53	.34	2.
6725	38	.11	1.00	8808	36	2.55	5,00	† S-15		2,	2.70	B-150	50	,03	
6725B	38	.14	1.00	8809	36	3.63	6,10	S-15P	53	2.	2.70	11-150	58	.27	1.
6727	38	.18	1.19	8810	36	3.88	6.85		50			IIH-150	58	.2	1.
	30			8811	36	5.38	7.15	B-20A	58	.26	1.35	MM-150	48	.03	
† 7923		.16	.95	8812	36	5.5	7.50	H-20A	48	2.7	3,30	X-150	60	.54	1.
7025	38	.22	1.00	8813	36	7.18	9.35	NM-20A	53	.1	1.02	XX-150	60	.53	2.
† 7029	**	.51	1.35	8814	36	7.91	10.35	S-20A		.90	2.10	7-1-1			4.
7033	38	.05	1.85	8815	36	9.60	11.50	† S-20C		.0	2.25	NM-406	48	.025	
7033C	38	.95	1.85	8816	36	10.78	12.75	NX-20B	60	4.4	2.10	NM-407	48	.025	
† 7034	1.	1.2	2.95	8909	36	3.84	4.40	NX-20C	60	1.36	3,00	NM-408	48	.025	.4

† Discontinued

SUPERIOR DROP-FORGINGS WILLIAMS AND DROP-FORGED TOOLS

LIST PRICES AND WEIGHTS OF WILLIAMS' WRENCHES

ARRANGED NUMERICALLY

	Page	Weight Each, Lbs.	List Price	Wrench No.		Weight Each, Lbs.	List Price	Wrench No.	Page	Weight Each, Lbs.	List Price	Wrench No.	Page	Weight Each, Lbs.	List Price
No.					200		_		DDE	NCHES			DDE	NCHES	
"ALWA	AYS	READ				NCHES lybdenun				lybdenum				lybdenun	
			Finished	(Chron	16-212 04		Finished	(Citi oiii			Finished	(0			Finish
		Per		† 1006A	1		\$ 1.50	† 1083B	1		\$ 2.30	1206B	35	1.	\$ 1.8
		Doz.		+ 1007		1.5	1.88	† 1083J		1.	2.30	1207	35	1.8	2.6
1	30	4.4	\$ 1.25	† 1008	1	2.2	2.50	† 1083K		1.	2.30	1207A	35	1.8	26
2	30	0.	1.55	† 1008A		2.2	2.50	† 1085		1.7	3.30	1208	35	2.7	3.5
† 2 1/2		20.	2.40	† 1009		2.8	3.80	† 1085B	100	1.7	3.30	1208A	35	2.7	3.5
3	30	32.	3,50	1 1010		3.9	5.30	† 1085C	120	1.7	3.30	1209	35	3,6	4.8
† Bull T.		3.7	.75	† 1010A		3.9	5.30	† 1085H		1.7	3,30	1209A	35	3.6	4,8
				+ 1011	1.00	4.8	6.90	† 1085J		1.7	3,30	1210	35	5.1	6.8
				† 1011A		4.8	6.90	† 1085K		1.7	3.30	1211	35	7.	10.4
"RI	11.5.	DOG"		† 1012		6.2	9.40	1090	43	.09	.76	1212	35	7.	10.0
			Finished	† 1012A		6.2	9.40	1090A	43	.00	.76				
		Per Doz.	r misned	† 1013		8.	12.15	1090B	43	.09	.76	† 1471		.28	3.0
	20		\$.45	† 1013A		8.	12.15	1090C	43	.00	.76	† 1472		.54	3.5
1	30		.75	1 1014		10.	15.30	1090D	43	.19	.76	† 1474	.++	.94	4.8
1 1/2	30	3.5	1.10	† 1014A		10.	15.30	1090E	43	.19	.76			-	
1 3/4	30	7.5	1.20		1			1090F	43	.19	.76	1519	71	.08	1.4
2 1/2	30	9. 16.5	1.85	10215	32	.09	.58	1092	43	.22	.82	1520	71	.57	2.:
2 1/2	30	38.	2.80	1021	32	.00	.58	1092B	43	.22	.82	† 1700	V	.00	
3			3.70	† 1022	111	.12	.69	1092G	43	.22	.82	† 1701		.13	
3 1/2	30	48.	5.60	1023	32	.12	.69	1092C	43	.22	.82	† 1702		.22	
4 1/2	30	97.	8.50	† 1024	200	.18	.82	1092D 1092F	43	.22	.82	1702		.33	
4 1/2	30	128. 158.	11.00	1025	32	.18	.82	10921	43	.34	.88	† 1704		,48	1.0
5			1.90	† 1025A		.18	.82	10944	43	.38	.88	† 1705		.65	1.
Twin	30	13.5	1.90	† 1026	1:	26	1.00	1094B	43	.38	.88	1 1706	4.	.92	1.
				1027	32	.26	1.00	1094D	43	.34	,88	† 1707		1.5	1.
	_		_	1027C	32	.26	1.00	1094F	43	.34	.88	1 1709		2.7	3.1
AD.	IUST	ABLE		† 1028	1	.37	1.24	1094G	43	.34	.88	1 .,0,	**		5.0
		renche	.	1028S	32	.37	1,24	1096	43	.41	1,06	1721	32	.08	
CHILD			Finished	1029	32	,49	1.24	1096A	43	.47	1.06	† 1722		.10	
		.13	\$ 1.05	† 1030	1::	.49	1.24	† 1096B		.47	1.06	1723	32	.10	
† 4 in.		.31	1.05	1031	32	.66	1.65	1096F		.41	1.06	1723A	32	.11	
† 6 ln. † 8 ln.	* 1	.63	1.30	† 1032	1::	.79	1.65	109611	43	.41	1.06	1725	32	.16	.5
	**	1.06	1.60	1033	32	.79	1.65					† 1725A		.16	.8
† 10 ln.	**	1.04	2.45	1033A		.79	1.65	1106	44	.02	.65	1725B	32	.16	.1
† 12 in.		4.19	3.30	1033C		.89	2.25	1107	44	.02	.65	† 1726	11	.26	1.0
† 15 ln.	11	6.88	4.80	1034	32	1.2	2.25	1108	44	.03	.72	1727	32	,26	1.4
† 18 In.	11	0.00	4.00	1034A		1,2	2.25	1109	44	.03	.72	† 1728	14.2	.37	1.
	-	_		1035	32	1.2	2.25	1112	44	.01	.65	1729	32	.37	1,:
"SUPE	RJU	STABL	E"	† 1036		1.7	3.15	1113	44	.01	.65	† 1730		.49	1.
		enches	11 74	1037	32	1.7	3.15	1114 1115	44	.01	.65	1731	32	.6	1.4
		1	Finished	1037A	1	1.7	3.15		44	.01	.65	1731A	32	.6	1.0
4 in.	31	.09	\$ 1.30	† 1038	32	2.1	4.90	1116	44	.03	.72	1731B	32	.6	1.0
6 ln.	31	.23	1.30	1039		2.2	4.90 4.90	1120	44	.03	.72	1731BR	42	.98	4.
8 In.	31	.47	1.60	1039A				1122	44	.03	.72	+ 1732		.79	1,1
10 ln.	31	.78	2.05	1040	32	2.2	4.90	1124	44	.04	.72	† 1732A		.70	1.
12 in.	31	1.41	2.95	1041	32	4.1	8.80	1124	44	.07	.82	1733	32	.80	2.
15 in.	31	3.22	4.45	† 1075		.20	.93	1132	44	.07	.82	† 1734		1.2	2.
18 In.	31	6.	7.35	† 1075A	100	.20	.93					1735	32	1.7	3.
10 1111	7.			† 1075B		.20	.93	1160	41	.08	1.15	1735BR	42	1.86	5.
	-	-		† 1077		.27	1.18	1161	41	.00	1.18	† 1736	.,	1.7	3.
"SUPI	ERRE	ENCHE	S"	† 1077B		.27	1.18	1162	41	.13	1.28	† 1736A		1.7	3.
(Chron	ie-Ma	lybdenu	m)	† 1977C		.27	1.18	1163	41	.21	1.40	1737	32	1.7	3.
	1		Finished	† 1077E		.27	1.18	1164	41	.28	1.55	† 1738		2,3	4.
A-100	42	,25	\$ 1.18	† 1077S		.27	1.18	1165	41	.38	1.70	† 1739		2,3	4.
A-100A	42	.25	1.18	† 1079		.46	1.45	1166	41	.5	1.85	† 1739A		2,3	4.
A-100B	42	.25	1.18	† 1079A		.46	1.45	1167	41	.75	2.00	† 1739B	4-	2.3	4.
A-100C	42	.25	1.18	1 10798		.46	1.45	1167A	41	.75	2.00				
A-101	42	.31	1.27	† 1079C		.46	1.45	1168	41	1.13	2.15	1800A	37	.07	
† 1000	1.4	.07	.47	† 1079E		.46	1.45	1170	41	1.13	2.15	1801	37	.11	
+ 1000A	1	.09	.47	† 1079S		.46	1.45	1171	41	1.75	2,40	1802	37	.19	
1 1001		.13	.56	1081	1	.72	1.75	1173	41	2.56	2.90	1802A	37	.19	
1 1002		.22	.70	† 1081A		.72	1.75	1176	41	3.88	3.45	1803	37	.31	1.
† 1002 † 1003	1	.33	.85	† 1081B		.72	1.75	1203	35	.52	1.43	1803A	37	.31	1.
1 1004		.48	1.05	† 108111		.72	1.75	1203A	35	.52	1.43	1804	37	.36	1.
† 1005		,65	1.25	† 1083		1,	2.30	1205	35	1.	1.86	1804A	37	.36	1.
1 1006		.92	1.50	† 1083A		i.	2.30	1205A	35	1. 88	1.86	1805	37	.45	1.
				,						-					

ARRANGED NUMERICALLY

Wrench No.		Weight Each, Lbs.	List Price	Wrench No.	Page	Weight Each, Lbs.	List Price	Wrench No.	Page	Weight Each, Lbs.	List Price	Wrench No.	Page	Weight Each, Lbs.	List Price
"SUPF	ERRE	NCHES	,,,	"SUPI	ERRE	NCHES	5"	"SUP	ERRE	NCHES	311		-	LDS.	
(Chrom	re-Mol	ybdenun		(Chron	e-Mo	lybdenun	n)			lybdenun		"SUP	ERSC	CKETS	3**
			Finished				Finished				Finished	1 2 21			
1805A	37	.45		† 7034A	1.1	1.3	\$ 2.95	8910	36		\$ 5.15	† B-21	1::		\$ 4.5
1806	37	.08	1.70	† 7037	4.	1.8	3.30	8911	36	5.88	5.50	B-30	50	.5	1.5
1806A	37	.68	1.70	† 7037A	11	2,4	3.80	8912	36	6.51	5.85	SB-30	53	.14	1.0
1806B	37	.68	1.70	7039	38	2.4	3,80	8913 8914	36	8.41	7.65	B-40	50	.57	2.7
1807	37	.89	2.05	7039A	38	2.4	3.80		36	9.5	8.65	S-40	53	1.4	3,9
1807A 1808	37	.89 1.5	2.05	† 7721		.11	.80	8924	45	,26	1.15	SB-40	53	.16	1.3
1808A	37	1.5	2.60	7723	38	.13	.95	8928	45	.26	1.15	11-41	58	4.63	6.1
1809	37	1.9	3.50	7725	38	.16	.95	8930	45	.26	1.15	II-41B	58	2.	1.1
1809A	37	1.9	3.50	7725B	38	.22	1.00	8932	45	.25	1.15	S-41	53	1.0	4.5
1810	37	2.9	4.70	7727	38	.31	1.05	8934	45	,22	1.15	B-42	50	.61	2.7
1810A	37	2.9	4.70	7727A	38	-48	1.20	8936	45	.22	1.15	B-42B	50	.15	.4
1811	37	3.1	6.20	7729	38	.48	1.20	9723	39	.10	.95	NM-42	48	.25	1.4
1811A	37	3.1	6.20	7729A	118	.66	1.40	9725	39	.19	1.00	NM-42B	48	.08	.2
1812	37	4.3	8.05	7731A 7731B	38	.66	1.40	9725B	39	.22	1.00				
11-1808	37	1.6	3.45	† 7733	38	.66	1.55	9727	39	.29	1.10	S-42 S-42B	53	1.8	3.9
11-1808A	37	1.6	3.45	7735		2.	1.85	"SUPEI	REN	CH" S	ETS		53	,35	.6
H-1809	37	2.3	4.65	7735A	38	2,	3.30 3.30			lybdenu		B-50	50	.43	3,6
II-1809A	37	2.3	4.65					A THE			Finished	B-50A	50	.43	3.6
II-1810	37	3.1	6.25	7737	38	2.4	3.80	106	42	1.82	\$ *7.85	B-50B	50	.43	3.3
H-1810A	37	3.1	6.25	8021	39	.18	.80	108	42	2.08	*10.30	H-50	58	5.3	10.5
H-1811	37	3.8	8.25	† 8023		.37	.95	† 1001		69.	154.60	S-50	53	1.3	4.5
II-1811A	37	3.8	8.25	8025	39	.43	1.00	1001A	62	69.	152.50	NX-50	60	6.3	16.2
11-1812	37	5.4	10.70	† 8029	4.5	.84	1.35	1025	33	2.7	*8.65	B-51	50	.44	4.5
11-1813	37	6.5	13.55	8033	30	1.3	1.65	1140	44	.39	7.45	B-51A	50	.44	4.5
H-1813A	37	6.5	13.55	8033C	39	1,14	1.85	1140P	44	.5	9.30	NM-51	48	,16	4.0
H-1814	37	7.8	16.90	† 8034		1.3	2,95	1148P	44	.23	5.15	S-51	53	1.4	6.7
11-1815	37	10.3	28,05	† 8034A		1.3	2.95	11685	41	.8	5.40	S-57	53	3,68	26.0
II-1815A	37	10.3	28.05	† 8037	**	2.1	3.30	11698	41	1.69	8.95	B-108	50	.16	1.0
H-1816	37	12.5	40.20	† 8037A	200	3.3	3.80	† 1284		1.29	9.72	NM-102	48	.06	.8
H-1817	37	16.3	55.00	8039	39	3.3	3.80	† 1284P	**	1,36	11.64	B-110	50	.23	1.0
II-1817A	37	16.3	55.00	8039A 8041	39	3.3	3.80	1285	49	1.29	9.70	II-110	58	1.5	2.70
1903	35	6.3	1.68	8045	39	5.79	4.95	1285P	49	1.36	11.55	NM-110	48	.34	1.4
1903A	35	6.3	1.68	† 8048		9.88	8.45	† 1290	* *	1.45	14.00	† S-110		.81	1.8
1905	35	1.2	2.25	8049	30	10.29	9.80 10.60	† 1290P 1291	49	1.53	15.85	S-110P	53	.53	1.20
1905A	35	1,2	2.25	8053	39	14.65	16.25	1291P	49	1.45	14.00	NX-110	60	3.68	5.2
1906	35	1.2	2.25					† 1400		1.93	15.85 *12.10	B-115	50	.44	1.2
1907	35	1.9	3,15	† 8128 † 8132	150	.27	1.35	1712	**	2.87	*30.20	H-115	58	2.8	3.3
1907A	35	1.9	3,15	† 8136	**	.39	1.45		**	1	1000	NM-115	48	.17	1.08
1908	35	2.8	4.25	† 8140	**	.61	1.55	6703	40	.41	3.05	† S-115		1,3	2,10
1908A	35	2.8	4.25	† 8148	**	.86	1.80	† 7006 † 8005	**	3.06	7.60	S-115P	53	1.0	1.65
1909	35	4.1	5.85				0.000	1 8005		4.29 3.54	8.10 7.60	NX-115	60	7.08	6.40
1910	35	5.6	8.10	8723	39	.26	.95	† 8105	41	2.91	7.80	BM-130	50	.05	.90
1911	35	7.9	12.25	8725 8725B	39	.37	.95	9703	40	.7	3.05	BS-130	50	.13	1.0
1912	35	7.9	12.25	8727	30	.43	1.00		-			IINX-130	58	1.69	1.5
† 1999		1.2	4.00	8727A	39	.8	1.05		1 1	CKETS		HX-130	58	.59	1.50
2273	43	2.7	4.80	8729	39	.8	1.20	MR-2 MR-4	65	.025	.75	MM-130	48	.02	.90
2274	43	3.9	5.40	8729A	39	1.	1.40	MR-4 MR-6		.034	.75	SH-130	53	,31	1,2
2276	43	4.8	6.50	8731A	39	î.	1.40	MR-8	65	.063	.75	XX-130	60	1,17	3.3
2277	43	6.1	7.75	8731B	39	i.	1.40	MR-10	65	,125	.75 .75	BS-131	50	.15	1.0
2278	43	8.2	9.25	† 8733		1.4	1.85		1			MM-131	48	.03	.9
2279	43	10.	11.00	1 8735		2.3	3.30	† S-10		1.8	2.70	XX-131	60	.93	3,3
2280	43	12.5	14.00	8735A	39	2.3	3.30	S-10P	53	1.8	2.70	B-140	50	.13	2.4
2280A	43	12.5	14.00	8807	36	2.15	4.75	F-15	50	1.1	2.10	H-140	58	1.2	7.5
6723	38	.08	.95	8808	36	2.15	5.00	MR-15	65	.075	1.00	S-140	53	.34	2.7
6725	38	.11	1.00	8809	36	3,63	6.10	† S-15		2.	2.70	B-150	50	.03	.5
6725B	38	.14	1.00	8810	36	3.88	6.85	S-15P	53	2.	2.70	11-150	58	.27	1.2
6727	38	.18	1.10	8811	36	5.38	7.15	B-20A	50	.26	1.35	IIH-150	58	.2	1,5
				8812	36	5.5	7.50	H-20A	58	2.7	3.30	MM-150	48	.03	.6
† 7023 7025	30	.16	.95	8813	36	7.18	9.35	NM-20A	48	.1	1.02	X-150	60	.54	1.6
	38	.22	1.00	8814	36	7.91	10.35	S-20A	53	.96	2.10	XX-150	60	.53	2.7
		.51	1.35	8815	36	9.69	11.50	† S-20C		.9	2.25	NM-406	10	.025	
† 7029 7033	20														. 4
7033 7033G	38	.95 .95	1.85	8816	36	10.78	12.75	NX-20B	60	4.4	2.10	NM-407	48	.025	.4

† Discontinued

ARRANGED NUMERICALLY

Wrench No.	Page	Weight Each, Lbs.	List Price	Wrench No.	Page		List Price	Wrench No.	Page	Weight Each,	List Price	Wrench No.	Page	Weight Each,	Lia Pris
		Los.				Lbs.				Lbs.				Lbs.	
		CKETS				CKETS		"SUP	ERSC	OCKETS				CTOR'	
S-410	52	.14		B-1220	50	.09		H-1258	58	1.9	\$ 2.95	Wienc	iice a	nu auci	
S-412	52	.14	.72	BD-1220	50	.163	.77	NX-1258	60	2.14	4.20	E1-416	46	2,6	\$4
S-414	52	.14	.72	BU-1220	50	.11	2.55	H-1260	58	1.9	2.95	E1-417	46	2,6	4
S-416	52	.17	.72					H-1264	58	2.1	3.50	E1-418	46	2.6	4
S-418	52	.23	.72	SD-1220	52	.26	1.26					E1-420	46	2.6	5
S-0418	52	.14	.90	ST-1220	52	.14	.72	NX-1264	60	2,42	4.80	E1-421	46	2.6	5.
S-420	52	.3	.72	+ ST-1221		.14	.72	† H-1266		2,5	4.10	E1-423	46	2.8	5
S-422	52	.32	.84	, = 1 1001	1	***		† H-1268	**	2.6	4.40	E1-424	46	2.8	5
S-424	52	.38	.90	B-1222	50	.11	.84	† H-1270	3.5	2.6	100000000000000000000000000000000000000	E1-426	46		
S-428	52	.53	.90	BD-1222	50	.218	.90	1 11-12/0	**	2.0	4.70			2.9	5
							3.5.00			0.00		E1-429	46	3,3	5
S-432	52	.65	1.20	SD-1222	52	.26	1.26	NX-1270	60	3.03	6.30	E1-430	46	3,3	5
	1			ST-1222	52	.16	.84	† H-1272	4.4	2.5	5.30	E1-432	46	3.5	5
LM1-604	69	.031	.69	B-1224	50	.13	.84	NX-1276	60	3.64	7.50	E1-435	46	4.	6
M-605	69	.031	.60					NX-1280	60	3,16	10.50	E1-436	46	4.	6
M-606	69	.031	.60	BD-1224	50	.215	1.00								
M-606	48	.014	.45	SD-1224	52	.37	1.26	"SUPER	SOC	KET" C	PTC	E1-617	46	2.6	4
M-607	69	.032	.60	ST-1224	52	.19	.90					E1-618	46	2.6	4
M-607	48	.018	.45	ST-1225	52	.21	.90	5	51		\$ 24.40	E1-620	46	2,5	1 5
AB-608	69	.056	.75	SD-1226	52	.37	1.26	† 6		7,25	27.65	E1-621	46	2.5	
B-608		.04	.72	ST-1226	52	.24	.90	6-B	51	7.25	25.50	E1-623	46		1
11-000	1.	.04	.74	31-1220	32	,27	.70	† 7		9.5	46.10			2.5	
186 440	48	010	40	+ 11 1770			1.00	7-A	51	9.5	43.95	E1-624	46	2.5	
M-608		.019	.45	+ H-1228	1::	.41	1.08	R-19	65	2.75	18.50	E1-626	46	2.6	
M-609	48	.019	.45	SD-1228	52	.45	1.26	20	55	23.	42.20				
AB-610	60	.063	.75	SD-1228T	52	.29	1.26	21	54	6.75	14.70	E1-627	46	2.6	2
AS-612	69	.113	.85	ST-1228	52	.28	.90	21R				E1-628	46	2.6	
AS-616	69	,125	.85	H-1230	58	.4	1.08		54	4.88	16,45	E1-629	46	2.8	
AS-618	69	,138	.85	HD-1230	58	.75	1.62	26	55	25.5	49.60	E1-630	46	2.8	
AS-620	69	.144	.85	SD-1230	52	.51	1.38	30	56	25.5	48.85	E1-632	46	3.2	
				ST-1230	52	.32	1.08	36	50	27.75	55.85	E1-633	46	3.2	1
X-682	60	6.33	12.00			100		50	59	28.75	48.54	E1-635	46	3.6	1
VX-688	60	6.7	16.50	† H-1231		.43	1.08	51	59	22.25	30.54				6
					**			55	57	43.5	87.85	E1-636	46	3.6	6
M-810	48	.031	.45	ST-1231	52	.34	1.08	55A	57	41,5	83,35	Tarak kanal		100	
M-812	48	.05	.45	H-1232	58	.5	1.08	76	61	53.	77.00	E2-432	46	5.7	9
				SD-1232	52	.52	1.50	81	61	32.	44.25	E2-435	46	6.	10
3D-814	50	.094	.85	ST-1232	52	.38	1.08	01	O.	02.	44.25	E2-438	46	6.5	10
3D-816	50	.131	.85	H-1234	58	.51	1.32	AL-100	69	10.	25.00	E2-441	46	7.1	10
3D-818	50	.138	.92	HD-1234	58	.90	1.86	† AL-101		10.	27.75	E2-444	46	7.0	11
3D-820	50	.175	.92									E2-447	46	9.	11
	1			S-1234	52	.39	1.20	† 300		44.	114.30	E2-450	46	10.	12
				NX-1234	60	1.13	1.80	† 600	4.4	130.	243.30	22-100	20	10.	**
B-1210		.04	.72	H-1236	58	.58	1.38	† 1001	1.1	69.	154.60	E2-632	40		
M-1210	48	.022	.45	S-1236				1001-A	62	69	152.50		46	5.5	5
	1				52	.43	1.32	† 1268				E2-635	46	5.8	10
B-1211	1.2	.05	.72	SD-1236	52	.74	1.68		1.4	1.06	6.96	E2-638	46	6.3	10
M-1211	48	.025	.45	NX-1236	60	1.15	1.80	† 1268P	1 ::	1,26	8.88	E2-641	46	6.7	10
B-1212	50	.05	.72	H-1238	58	.69	1.38	1269	49	1.06	6.95	E2-644	46	7.2	11
M-1212	48	.031	.45	S-1238	52	.51	1.38	1269P	49	1.26	8.80	E2-647	46	8.	11
B-1214	50	.05	.72		100			1269PR	49	1.5	12.90	E2-650	46	9.	12
			100	H-1240	58	.67	1.56	† 1284		1.29	9.72				
D-1214	50	.10	.77	HD-1240	58	1.2	2.28	† 1284P		1.36	11.64	E3-450	46	16.	20
U-1214	50	.00	2.30	S-1240	52	.53	1.44	1285	49	1.29	9.70	E3-456	46	17.	20
M-1214	48	.038	.45	NX-1240	60	1.23	1.98	1285P	49	1.36	11.55	E3-462	46	18.3	21
T-1214	52	.11	.72	H-1242	58	.78	1.56	1286PR	49	2.06	18.50	E3-468	46		
B-1216	50	.06	.72	-1	93			† 1290		1.45	14.00			19.9	22
D-1216	50	.10		11,1244	80	70	1 24	† 1290P		100000000000000000000000000000000000000	15.85	E3-474	46	22.5	23
			.77	H-1244	58	.78	1.56		40	1.53					
U-1216	50	.09	2.30	NX-1244	60	1.29	2.10	1291	49	1.45	14.00	E3-650	46	14.9	20
D-1216	52	.27	1.14	H-1246	58	.88	1.86	1291P	49	1.53	15.85	E3-656	46	15.6	20
T-1216	52	.12	.72	HD-1246	58	1.6	2.52	1292PR	49	2.41	23.80	E3-662	46	16.8	21
				NX-1246	60	1.33	2.22	"St11	ERF	CTOR"		E3-668	46	17.9	22
B-1218	50	.07	.72							nd Sock		E3-674	46	18.4	23
D-1218	50	.125	.77	H-1248	58	1.	1.86	E1-24	46		12.60			-	
U-1218	50	.10	2.55	NX-1248	60	1.43	2.70	E1-24 E1-36				"SUPE	REC	ror" s	SET
D-1218	52	.26	1.14	H-1252	58	1.	2.16	E1-50	46	12.8	19.80		1		1
D-1218S		.24	1.30	-4-1456	20	**	2.10	E2-36	40	20.0	75 76				
SF-1218				NIV 4252	40	1.00	2 00		46	20.9	25,20	D4 40		40	
	52	.13	1.00	NX-1252	60	1.86	3.00	E2-48	46	24.	32,40	E1-12	46	42.	\$ 71
ST-1218	52	.11	.72	II-1254	58	1,3	2.70							Later 1	
T-1219	52	.13	.72 1	H-1256	58	1.3	2.70	E3-48	46	40.6	50.40		1		

LIST PRICES AND WEIGHTS OF WILLIAMS' TOOLS

No.	Page	Weight Each, Lbs.	List Price	No.	Page	Weight Each, Lbs.	List Price	No.	Page	Weight Each, Lbs.	List Price	No.	Page	Weight Each, Lbs.	List Price
1	PLIE	RS		CHAIN	PIP	E TON	GS	тоо	L HC	LDERS	;	TOO	L HO	DLDER!	S
† 5	71	.27	\$.65	A-10	81	2.	\$ 7.50	000L	1 87	.25	\$2.70	NS-20	92	.94	\$4.5
16	71	.44	.70	A-11	81	5.75	10.50	000R	87	.25	2.70	N-21R	93	1.4	* 3.6
† 8	71	.53	.90	A-12	81	10.	15.00	000S	87	.25	2.70	NS-21	92	1.31	5.4
† 10	71	.88	1.25	A-13	81	17.	21.00	00 K	94	.55	5.65	N-22R	03	2.1	* 4.5
† 36	71	.5	.90	A-13 1/2	81	24.	27.00	OOL	87	.46	2.70	NS-22	92	2.17	6.7
† 46	71	.34	1.25	A-14	81	31.	33.00	OOR	87	.46	2.70	N-23R	ม3	3.4	* 6.0
† 57	71	.47	2.30	A-15	81	52.	54.00	005	87	.43	2.70	NS-23	92	3.94	9.0
† 76	71	.25	2.40	A-16	81	137.	120,00	0K	94	.65	6.00	N-24R	93	4.4	* 7.5
† 77	71	.30	2.70					eL	87	.73	2.85	N-25R	93	4.6	* 8.6
1519	71	.08	1.85	23	82	19.	14.00	6R	87	.73	2.85	N-030L	93	.46	* 2.8
1520	71	.57	2,20	23 1/2		28.	18.00	0S	87	.69	2.85	N-030R	93	,46 .75	* 2.8
SCRE	w n	RIVER	8	24 25	82 82	41. 65.	22.00 36.0 0	1K	94	1.6	6.75	N-30L N-30R	93	75	* 3.0 * 3.0
WP-1	72		April 1997	25	04	00.	30.00	1L	87	1.3	3.25	NS-30R	92	90	* 3.0 4.5
WP-2	72	.06	\$.60 .65	30	82	2.	5.00	† FT-1L T-0L	86	1.22	4.40	NS-30RA	92	.85	4.5
WP-3	72	.31	.75	31	82	5.75	7.00	T-1L	86	1.22	3.20	The same of the			
† 4	72	.19	1.05	32	82	10.	10.00	1R	87	1.3	3.60 3.25	N-31L	93	1,4	* 3.6
CP-4	72	.55	2.30	33	82	17.	14.00	+ FT-IR		1.22	4.40	N-31R	03	1.4	* 3.6
WP-4	72	.53	.95	33 1/2		24.	18.00	T-OR	86	.5	3,20	NS-31R	92	1.47	5.4
† 6	72	.38	1.40	34	82	31.	22.00	T-1R	86	1.22	3.60	N-32I,	93	2.3	* 4.5
† 6B	72	.5	1.55	35	82	52.	36.00	IS	87	1.1	3,25	N-32R NS-32R	93	2.38	* 4.5
1.8	72	.59	1.75					† FT-1S		1.19	4.40	NS-32R 33L	92	3.7	* 6.0
† 12	72	.75	2.10	123 1/2		20.75	20,00	T-0S	86	.5	3,20	N-33R	93	3.7	* 6.0
† 24	72	.19	.95	124	82	30.25	26.00	T-1S	86	1.19	3.60	NS-33R	92	3.81	9.6
† 26	72	.33	1.30	125	82	44.75	36.00	2	90	14.7	\$ 27.00	34L	93	4.9	* 7.5
† 28	72	.53	1.60	7.61111111				2K	94	2.25	8.00	N-34R	93	4.9	* 7.5
† 32	72	.60	1.95					2L	87	2.5	4.00	351.	93	5.	* 8.6
† 43	72	.09	.75	CHAIN		PE VIS		† FT-2L		2.06	5.40	N-35R	93	5,	* 8.6
† 46	72	.14	.95	1	77	4.	\$ 7.00	T-2L	86	2,06	4.50	10.0			
† 50	72	.17	1.10	V-1	75	35.	31.00	2R	87	2.5	4.00	C-050	89	5	4.1
† 52	72	.03	.32	2	77	10.	15.00	† FT-2R	01	2.06	5,40	C-50	89	.6	4,1
† 62	72	,14	.65	3	77	18.	27.00	T-2R	86	2.06	4.50	S-50	89	1.	4.1
WP-62	72	.09	.55	4	77	30.	36,00	28	87	2.1	4.00	C-51	89	1.1 2,2	5.0 6.4
1.7	122	111111111		-3.			(Tan	† FT-2S		2	5.40	C-52	89	1.6	5.0
þ	UNC	2311		11	76	7.	10.00	T-2S	86	2.	4,50	S-51 S-52	89	2.7	6.4
				12	76	15.	19.00	3	90	23.8	1 37.50	White and the second		Jahren Villa	100
† P-4	73	.16	\$.54 62	† 21		5.75	9,60	3L	87	3.4	5.40	080	91	1.3	5 4.9
† P-6 † P-8	73	.25	.77			1		+ FT-3L		3.22	7.20	80	91	2.2	4 4.9
† P-13	73	.28	.62	TO	OI F	POSTS	10	T-3L	86	3.22	6.00	18	91	3.1 6.7	5.8
† P-14	73	.41	.77					3R	87	3.4	5,40	82 83	91	10.3	1 7.6 110.8
† P-25	73	.22	.75	5	84	.44	\$.82	† FT-3R	100	3.22	7.20		91		The Party
t P-26	73	.41	.85	10	84 84	.B1 2.1	1.05	T-3R	86	3.22	6.00	91	96	2.1	4.6
† P-30	73	.13	.45	20				38	87	3.3	5 40	92	96	3.4	6.0
† P-40	73	.16	.45	23 28	84	2.1	1.65	† FT-3S	127	3.06	7.20	93	96	6.	7.8
	1			30	84	3.	2.10	T-3S	86	3.06	6.00	94	96	12.	12.4
_	-			40	84	4.7	3.05	4	90	39.	§60.00	95 96	96 96	20.6	21.7
(CHIS	ELS		50	84	6.6	3,95	4L	87	4.9	6,90	97	96	35. 57.	39.0
† C-8	73	.06	\$.54	60	84	13,6	7.95	† FT-4L		4.5	9.20			The same of the same of	57.0
C-12	73	.16	.62			10,0	1170	T-4L	86	4.5	7.60	0200L	88	.59	2.2
† C-16	73	.31	.73					4R	87	4.9	6.90	0200R	88	.59	2.2
† C-20	73	.5	.85	Service Control	-			† FT-4R		4.5	9.20	02005	88	.57	2.7
C-24	73	.78	1.05	TOOL I	POST	WED	GES	T-4R	86	4.5	7.60	200L	88	1.1	2.8
† C-36	73	1.63	1.65	5	84	.06	\$.27	45	87	4.7	6.90	200R 200S	88	1.1	2.8
† C-422	73	1.44	1.65	10	84	,13	.30	† FT-4S	::	4.38	9.20	201L	88	1.0	2.1
99999			1000	ii	84	.09	.30	T-4S	86	4.38	7.60	201R	88	2.	3.
	EEL 1	PULLER	3	15	84	.16	.33	5	90	69,	\$ 90.00	2018	88	2.	3.
WHE		1.69	\$12.25	18	84	.18	.34	5L	87	7.8	9.75	202L	88	3.2	4.0
	1			20	84	,22	.35	†FT-5L		7.55	12.90	202R	88	3.2	4.
† 5				30	84	.25	.40	T-5L	86	7.55	10.80	2025	88	3,2	4.
† 5			12.55		84	.44	.47	5R	87	7.8	9.75	204L	88	3.2	6.
		E TON	GS	40		.63	.56	† FT-5R	1	7.55	12.90	204R	88	3.2	6.
† 5 CHAIN			THE RESERVE OF THE PARTY OF THE		84	100		T-5R	86	7.55	10.80			3.2	6.
† 5 CHAIN 0	PIP	2.	\$ 5.00	40	84	.75	.61					204S	88	47.00	
CHAIN	70 79	2. 5.5	\$ 5.00 7.00	40 60			10.	5S	87	7.2	9.75	2045	00	Orai	
† 5 CHAIN 0	PIP	2.	\$ 5.00	40 60			10.	5S † FT-5S	87	7.2 7.44	9.75 12.90	17.5		1101	ETS
† 5 CHAIN 0 1 2	70 79 79	2. 5.5 10.	\$ 5.00 7.00 10.00	40 60 65	84	.75	C L	5S † FT-5S T-5S	86	7.2 7.44 7.44	9.75 12.90 10.80	TOOL		1101	ETS
† 5 CHAIN 0 1 2 3 3 1/2	79 79 79 79 79 79	2. 5.5 10. 17. 26. 34.	\$ 5.00 7.00 10.00 14.00 18.00 22.00	40 60 65	POS	.75	GS	5S † FT-5S T-5S 6L	87 86 87	7.2 7.44 7.44 12.	9.75 12.90 10.80 13.50	TOOL	HOL	1101	ETS
† 5 CHAIN 0 1 2 3 3 1/2 4 5	79 79 79 79 79 79 79	2. 5.5 10. 17. 26. 34. 54.	\$ 5.00 7.00 10.00 14.00 18.00 22.00 36.00	40 60 65 TOOL	POS 84	.75 T RIN	GS] \$,33	5S † FT-5S T-5S	86	7.2 7.44 7.44	9.75 12.90 10.80	17.5	HOL	1101	ETS
† 5 CHAIN 0 1 2 3 3 1/2	79 79 79 79 79 79	2. 5.5 10. 17. 26. 34.	\$ 5.00 7.00 10.00 14.00 18.00 22.00	40 60 65	POS	.75	GS	5S † FT-5S T-5S 6L 6R 6S 11K	86 87 87 87 87 94	7.2 7.44 7.44 12. 12. 12.	9.75 12.90 10.80 13.50 13.50 13.50 9.00	TOOL 1	IIOL 97	1101	ETS
† 5 CHAIN 0 1 2 3 3 1/2 4 5	79 79 79 79 79 79 79 79 79 80	2. 5.5 10. 17. 20. 34. 54.	\$ 5.00 7.00 10.00 14.00 18.00 22.00 36.00 5.00	40 60 65 TOOL 5	POS 84 84	.75 T RIN	GS .33 .47	58 † FT-58 T-58 6L 6R 6S 11K 12K	87 86 87 87 87 87 94 94	7.2 7.44 7.44 12, 12, 12, 1.9 2.25	9.75 12.90 10.80 13.50 13.50 13.50 9.00 10.50	TOOL 1	97	DOGS	<u></u>
† 5 CHAIN 0 1 2 3 3 1/2 4 5 10 11 12 13	79 79 79 79 79 79 79 80 80 80 80	2. 5.5 10. 17. 26. 34. 54. 2. 5.75	\$ 5.00 7.00 10.00 14.00 18.00 22.00 36.00 5.00 7.00 10.00 14.00	40 60 65 TOOL 5 10 11 14 18	POS 84 84 84 84 84	.75 T RING .25 .5 .5 .75 1.3	GS .33 .47 .52 .75 .94	5S † FT-5S T-5S 6L 6R 6S 11K 12K 15	87 86 87 87 87 94 94	7,2 7,44 7,44 12, 12, 12, 12, 1,9 2,25 .63	9.75 12.90 10.80 13.50 13.50 9.00 10.50 4.15	TOOL 1	07	DOGS	\$ 1.
† 5 CHAIN 0 1 2 3 3 1/2 4 5 10 11 12 13 13 1/2	79 79 79 79 79 79 79 79 80 80 80 80 80 80	2. 5.5 10. 17. 26. 34. 54. 2. 5.75 10. 17. 24.	\$ 5.00 7.00 10.00 14.00 18.00 22.00 36.00 5.00 7.00 10.00 14.00	40 60 65 TOOL 5 10 11 14 18 20	POS 84 84 84 84 84 84	.75 T RIN .25 .5 .5 .75 1.3 .94	GS \$.33 .47 .52 .75 .94 .82	5S † FT-5S T-5S 6L 6R 6S 11K 12K 15	87 86 87 87 87 87 94 94 90	7.2 7.44 7.44 12. 12. 12. 1.9 2.25 .63 1.2	9.75 12.90 10.80 13.50 13.50 13.50 9.00 10.50 4.15 5.25	TOOL 1	07 FIE 100 100 100	DOGS 32 .56	\$ 1. 1. 1.
† 5 CHAIN 0 1 2 3 3 1/2 4 5 10 11 12 13	79 79 79 79 79 79 79 80 80 80 80	2. 5.5 10. 17. 26. 34. 54. 2. 5.75 10.	\$ 5.00 7.00 10.00 14.00 18.00 22.00 36.00 5.00 7.00 10.00 14.00	40 60 65 TOOL 5 10 11 14 18	POS 84 84 84 84 84	.75 T RING .25 .5 .5 .75 1.3	GS .33 .47 .52 .75 .94	5S † FT-5S T-5S 6L 6R 6S 11K 12K 15	87 86 87 87 87 94 94	7,2 7,44 7,44 12, 12, 12, 12, 1,9 2,25 .63	9.75 12.90 10.80 13.50 13.50 9.00 10.50 4.15	00 to 4	07	DER SI DOGS 32 .56 1. 1.5	\$ 1. 1.

†Discontinued

*Complete with Cut-Off Blade; with Side Blade, extra. ©Complete with Sleeve Bar; with Plain Bar, less.

LIST PRICES AND WEIGHTS OF WILLIAMS' TOOLS

	Page	Weight Each, Lbs.	List Price	No.	Page	Weight Each, Lbs.	List Price	No.	Page	Weight Each, Lbs.	List Price		Weight Each, Lhs. Pric
LAT	HE I	oogs		(LAM	IPS	-	но	IST I	OOKS		ROD E	NDS
7	100	3.3	\$ 2.40	196	107	5.5	\$ 5.50	2	118	.59	\$.32	OB to 4E 123	
8	100	4.1	2.80	108	107	7	6.50	3	118	.78	.37	5A to 19A 123	
9	100	5.4	3.60	110	107	7.5	7.50 8.50	4	118	1.	.44		
10	100	7.	6.90	115	107	13.5	11.00	5	118	1.6	.58	THUMB NUTS A	
11 12	100 100	10.	9.00	118	107	17.	14.00	6	118	2.1	.85	Thumb Nut B	llanks "A"
13	100	20.	16.00				Plain	7	118	3.	1.25	Page 1	116
				201	110	95	Screw 1.00	8	118	4.4	1.80	For Bolt;	Weight, Lbs
21	102	.19	1.00	202	110	.25	1.30	9	118	6.2	2.45	Size	Per 100
22	102	.34	1.10	203 204	110	.56	1.70				10	1/8 3/16	.62 1,3
23 24	102 102	1.06	1.20	204	110	· v	2.50 Swivel	10	118	8.	3.20	1/4	2.3
25	102	1.5	1.70				Screw	ii	118	10.	4.10	5/16	4.
26	102	2.	2.08	201	110	.25	1.50	12	118	13.3	5.68	3/8	6.2
27	102	2.7	2.46	202 203	110 110	.56	2.30	13	118	17.8	7.80	7/16	9,1
28	102	3.5	2.80	204	110	0	3.20		1.00	00.7	*2.00	1/2	12.7
29	102	4.6	3.60 4.60	201			2.00	14 15	118	26.7 44.	12.00 23.00	9/16 5/8	16.2 22.5
30 31	102 102	6. 0.	6.00	301 302	111	1.4	3,00 4,00	15A	118	46.	39.00	3/4	37.
32	102	11.	9.00	303	111	1.9	5.00	16	118	75.	60.00		
33	102	19.5	16.00	304	111	3.1	6,00	16A	118	76.	70.00	Thumb Nut B	llanks "B"
61	105	,53	3.00				Standard Finish					Page	116
62	105	.98	4.00	402	109	1.13	1.50	22	110	.53	74	1/8	.94
63	105	1.8	5.00	403	109	1.5	1.80	23	110	.75	.43	3/16	1.6
64	105	3.	7.00	404 406	109	2.25 3.75	2.20 3.00	24	119	1.1	.53	1/4	2.8
112	101	15.	16.00	408	109	5.5	4.00	25	119	1.5	.73	5/16	6.8
113	101	21,5	24.00	410	109	8.25	5.00	26	110	2.2	1.05	3/8 7/16	9.5
114	101	30.7	34.00	412	109	12.5	6.50	27	119	3.	1.50	1/2	13.7
132	103	13.	16.00				Spatter- Resisting	28 29	119	6.	2.10 2.85	9/16	15.3
133 134	103	20.5	24.00 34.00	402-5	109	1.13	1.80 2.25	47	110	0,	2.03	5/8	21.8
10%	400	20,	01.00	403-S 404-S	109	1.5	2.25			1		3/4	38.
ILLING	MAC	HINE	DOGS	406-S	100	3.75	3.75	30	119	8.	3.70	Thumb Screw	Blanks "C"
42	104	.75	\$ 1.10	408-S 410-S	109	5.5 8.25	6.00	31	119	10.3	4.70	Pages 116	
43	104	.93	1.20	412-S	109	12.5	7.50	32 33	119	14.	6.40 9.40	1/8 x 1	.94
44	104	1.2	1.40			1	1	34	119	31.5	18.50	1/8 x 2	1.3
45	104	1.3	1.70	† 502 † 503		1.25	1.50	35	119	51.7	35.00	1/8 x 3	1.6
46 47	104	1.6	2.00	504		2.	2.20	36	119	86.	86.00	1/8 x 4	2.1
48	104	2.1	2.80	506		3.	3.00 4.00	36A	119	88.	100.00	3/16 x 1 3/16 x 2	2.1 3.4
			0.0	† 510		6.	5.00	*	YE E	OLTS		3/16 x 3	4.3
			24	+ 512		7.5	6.50	3	1100				
	CLAN	IPS			1	F +47		3	120	.17	\$.16	3/16 x 4	5.6
0	LAN 106	.25	\$ 1.00	BALAN	-	HANDI	ES	4	120	.23	.18	1/4 x 1	4,
0	106 106	.25 .76	1.50		ICE	HANDI	1 \$ 4.90	4 5	120 120	.23	.18 .21	1/4 x 1 1/4 x 2	4, 5.3
0 1 1 1/2	106 106 106	.25 .75 1.6	1.50 2.50	434 439	114 114	1.3 2.8	\$ 4.90 5.90	5 6	120 120 120	.23 .33 .5	.18 .21 .25	1/4 x 1 1/4 x 2 1/4 x 3	4, 5.3 7.8
0 1 1 1/2 2	106 106 106 106	.25 .75 1.6 3.1	1.50 2.50 3.50	434 439 512	114 114 114	1.3 2.8 .25	\$ 4.90 5.90 2.30	4 5 6 7	120 120 120 120	.23 .33 .5 .68	.18 .21 .25 .32	1/4 x 1 1/4 x 2 1/4 x 3 1/4 x 4	4, 5.3 7.8 8.7
0 1 1 1/2 2 3	106 106 106 106 106	.25 .76 1.6 3.1 6.5	1.50 2.50 3.50 5.00	434 439 512 516	114 114 114 114	1.3 2.8	\$ 4.90 5.90 2.30 2.45	5 6	120 120 120 120 120 120	.23 .33 .5 .68 1.1	.18 .21 .25 .32 .42	1/4 x 1 1/4 x 2 1/4 x 3 1/4 x 4 5/16 x 1	4, 5.3 7.8 8.7 6.2
0 1 1 1/2 2	106 106 106 106	.25 .75 1.6 3.1	1.50 2.50 3.50	434 439 512 516 520 522	114 114 114 114 114 114	1.3 2.8 .25 .56 .75	\$ 4.90 5.90 2.30 2.45 2.65 2.90	4 5 6 7 8	120 120 120 120	.23 .33 .5 .68	.18 .21 .25 .32	1/4 x 1 1/4 x 2 1/4 x 3 1/4 x 4	4, 5.3 7.8 8.7 6.2 7.8 10.6
0 1 1 1/2 2 3 4	106 106 106 106 106 106 106 106	.25 .76 1.6 3.1 6.5 9.7 12.3 16.5	1.50 2.50 3.50 5.00 6.50 8.09 10.00	434 439 512 516 520 522 525	114 114 114 114 114 114 114	1.3 2.8 .25 .56 .75 1.1 1.3	\$ 4.90 5.90 2.30 2.45 2.65 2.90 3.30	4 5 6 7 8 9	120 120 120 120 120 120	.23 .33 .5 .68 1.1 1.5	.18 .21 .25 .32 .42 .55	1/4 x 1 1/4 x 2 1/4 x 3 1/4 x 4 5/16 x 1 5/16 x 2	4. 5.3 7.8 8.7 6.2 7.8
0 1 1 1/2 2 3 4 5 6	106 106 106 106 106 106 106 106 108	.25 .76 1.6 3.1 6.5 9.7 12.3 16.5 24.	1.50 2.50 3.50 5.00 6.50 8.09 10.00	434 439 512 516 520 522 525 529	114 114 114 114 114 114 114 114	1.3 2.8 .25 .56 .75 1.1 1.3 1.6	\$ 4,90 5,90 2,30 2,45 2,65 2,90 3,30 3,85	4 5 6 7 8 9	120 120 120 120 120 120 120	.23 .33 .5 .68 1.1 1.5	.18 .21 .25 .32 .42 .55	1/4 x 1 1/4 x 2 1/4 x 3 1/4 x 4 5/16 x 1 5/16 x 2 5/16 x 3 5/16 x 4	4, 5.3 7.8 8.7 6.2 7.8 10.6 13.7
0 1 1 1/2 2 3 4 5 6 8	106 106 106 106 106 106 106 106 106	.25 .76 1.6 3.1 6.5 9.7 12.3 16.5 24.	1.50 2.50 3.50 5.00 6.50 8.09 10.00 14.00	434 439 512 516 520 522 525 529 CRAN	114 114 114 114 114 114 114 114 114	1.3 2.8 .25 .56 .75 1.1 1.3 1.6	\$ 4,90 5,90 2,30 2,45 2,65 2,90 3,30 3,85	4 5 6 7 8 9	120 120 120 120 120 120 120	.23 .33 .5 .68 1.1 1.5	.18 .21 .25 .32 .42 .55	1/4 x 1 1/4 x 2 1/4 x 3 1/4 x 4 5/16 x 1 5/16 x 2 5/16 x 3 5/16 x 4	4, 5.3 7.8 8.7 6.2 7.8 10.6 13.7
0 1 1 1/2 2 3 4 5 6 8 10	106 106 106 106 106 106 106 106 106 106	.25 .76 1.6 3.1 6.5 9.7 12.3 16.5 24. 28.	1.50 2.50 3.50 5.00 6.50 8.09 10.00 14.00 19.00 25.00	434 439 512 516 520 522 525 529 CRAN	114 114 114 114 114 114 114 114 114	1.3 2.8 .25 .56 .75 1.1 1.3 1.6	\$ 4.90 5.90 2.30 2.45 2.65 2.90 3.30 3.85 ES	4 5 6 7 8 9	120 120 120 120 120 120 120 120 120	.23 .33 .5 .68 1.1 1.5	.18 .21 .25 .32 .42 .55	1/4 x 1 1/4 x 2 1/4 x 3 1/4 x 4 5/16 x 1 5/16 x 2 5/16 x 3 6/10 x 4 3/8 x 1 3/8 x 2	4. 5.3 7.8 8.7 6.2 7.8 10.6 13.7
0 1 1 1/2 2 3 4 5 6 8 10 12 30	106 106 106 106 106 106 106 106 106 106	.25 .76 1.6 3.1 6.5 9.7 12.3 16.5 24. 28. 40.	1.50 2.50 3.50 5.90 6.50 8.09 10.08 14.00 19.00 25.00	434 439 512 516 520 522 525 529 CRAN 00 0	114 114 114 114 114 114 114 114 114	1.3 2.8 .25 .56 .75 1.1 1.3 1.6 (ANDLI	\$ 4.90 5.90 2.30 2.45 2.65 2.90 3.30 3.85 \$ 1.85 2.00 2.30	4 5 6 7 8 9	120 120 120 120 120 120 120 120 120 120	.23 .33 .5 .68 1.1 1.5	.18 .21 .25 .32 .42 .55	1/4 x 1 1/4 x 2 1/4 x 3 1/4 x 4 5/16 x 1 5/16 x 2 5/16 x 3 6/10 x 4 3/8 x 1 3/8 x 1 3/8 x 2 3/8 x 3	4. 5.3 7.8 8.7 6.2 7.8 10.6 13.7
0 1 1 1/2 2 3 4 5 6 8 10	106 106 106 106 106 106 106 106 106 106	.25 .76 1.6 3.1 6.5 9.7 12.3 16.5 24. 28.	1.50 2.50 3.50 5.00 6.50 8.09 10.00 14.00 19.00 25.00	434 439 512 516 520 522 525 529 CRAN 00	114 114 114 114 114 114 114 115 115 115	HANDI 1.3 2.8 .25 .56 .75 1.1 1.3 1.6 ANDLI .38 .48 .48 .78 .75	\$ 4.90 5.90 2.30 2.45 2.65 2.90 3.30 3.85 &S \$ 1.85 2.00 2.30 2.30	4 5 6 7 8 9	120 120 120 120 120 120 120 120 120	.23 .33 .5 .68 1.1 1.5 2.1 3. 4.2 6.8 10.9 15.1	.18 .21 .25 .32 .42 .55 .74 1.04 1.45 2.50 3.75 5.30	1/4 x 1 1/4 x 2 1/4 x 3 1/4 x 4 5/16 x 1 5/16 x 2 5/16 x 3 5/16 x 4 3/8 x 1 3/8 x 2 3/8 x 3 3/8 x 4 7/16 x 1	4. 5.3 7.8 8.7 6.2 7.8 10.6 13.7 10. 12.5 16. 19.3 13.7
0 1 1 1/2 2 3 4 5 6 8 10 12 30 35	106 106 106 106 106 106 106 106 106 106	.25 .76 1.6 3.1 6.5 9.7 12.3 16.5 24. 28. 40. .37	1.50 2.50 3.50 5.90 6.50 8.09 10.00 14.00 19.00 25.00 .40 .50 .70	434 439 512 516 520 522 525 529 CRAN 00 0 1	114 114 114 114 114 114 114 115 115 115	HANDI 1.3 2.8 .25 56 .75 1.1 1.3 1.6 (ANDLI .38 .43 .78 .75 1.1	\$ 4.90 5.90 2.30 2.45 2.65 2.90 3.30 3.85 ES \$ 1.85 2.00 2.30 2.30 2.30 2.35	4 5 6 7 8 9 10 11 12 14 15	120 120 120 120 120 120 120 120 120 120	.23 .33 .5 .68 1.1 1.5 2.1 3. 4.2 6.8 10.9	.18 .21 .25 .32 .42 .55 .74 1.04 1.45 2.50 3.75	1/4 x 1 1/4 x 2 1/4 x 3 1/4 x 4 5/16 x 1 5/16 x 2 5/16 x 3 5/16 x 3 5/16 x 4 3/8 x 1 3/8 x 2 3/8 x 3 3/8 x 3 3/8 x 3 3/8 x 1 7/16 x 1 7/16 x 1	4. 5.3 7.8 8.7 6.2 7.8 10.6 13.7 10. 12.5 16. 19.3 13.7
0 1 1 1/2 2 3 4 5 6 8 10 12 30 35 40 44 46	106 106 106 106 106 108 108 108 106 112 112 112 113	.25 .76 1.6 3.1 6.5 9.7 12.3 16.5 24. 28. 40. .37 .62 .83 1.6	1.50 2.50 3.50 5.90 6.50 8.09 10.00 19.00 25.00 .40 .50 .70 .60 1.00	434 439 512 516 520 522 525 529 CRAN 00 1 2 4 6 6	114 114 114 114 114 114 114 115 115 115	HANDI 1.3 2.8 .25 56 .75 1.1 1.3 1.6 ANDLI .38 .43 .78 .75 1.1 1.1	\$ 4.90 5.90 2.30 2.45 2.65 2.90 3.30 3.85 ES \$ 1.85 2.00 2.30 2.30 2.30 2.35	4 5 6 7 8 9 10 11 12 14 15 16	120 120 120 120 120 120 120 120 120 120	23 .33 .5 .68 1.1 1.5 2.1 3. 4.2 6.8 10.9 15.1 31,	.18 .21 .25 .32 .42 .55 .74 1.04 1.45 2.50 3.75 5.30 8.80	1/4 x 1 1/4 x 2 1/4 x 3 1/4 x 4 5/16 x 2 5/16 x 3 5/16 x 3 5/16 x 3 5/16 x 4 3/8 x 1 3/8 x 2 3/8 x 3 3/8 x 4 7/16 x 1 7/16 x 2 7/16 x 3	4. 5.3 7.8 8.7 6.2 7.8 10.6 13.7 10. 12.5 16. 19.3 13.7 16.5 21.2
0 1 1 1/2 2 3 4 5 6 8 10 12 35 40 44 46 48	106 106 106 106 106 108 108 108 108 112 112 112 113 113	.25 .75 1.6 3.1 6.5 9.7 12.3 16.5 24. 28. 40. .37 .62 .87 .83 1.8	1.50 2.50 3.50 5.00 6.50 8.09 10.00 14.00 19.00 25.00 .40 .50 .70 .60 1.70	434 439 512 516 520 522 525 529 CRAN 00 0 1 2 4 6 8	114 114 114 114 114 114 114 115 115 115	1.3 2.8 .25 56 575 1.1 1.3 1.6 ANDLI .38 .78 .75 1.1 1.1	\$ 4.90 5.90 2.30 2.45 2.65 2.65 3.30 3.85 \$ 1.85 2.00 2.30 2.30 2.30 2.30 2.30 2.30 2.45 3.85	4 5 6 7 8 9 10 11 12 14 15 16 17	120 120 120 120 120 120 120 120 120 120	23 .33 .5 .68 1.1 1.5 2.1 3. 4.2 6.8 10.9 15.1 31,	.18 .21 .25 .32 .42 .55 .74 1.04 1.45 2.50 3.75 5.30 8.80	1/4 x 1 1/4 x 2 1/4 x 3 1/4 x 4 5/16 x 1 5/16 x 3 5/16 x 3 5/10 x 4 3/8 x 1 3/8 x 2 3/8 x 3 3/8 x 4 7/16 x 1 7/16 x 2 7/16 x 3 7/10 x 4	4. 5.3 7.8 8.7 6.2 7.8 10.6 13.7 10. 12.5 16. 19.3 13.7 16.5 21.2 26.2
0 1 1 1/2 2 3 4 5 6 8 10 12 30 35 40 44 46 48 54	106 106 106 106 106 106 106 106 106 112 112 113 113 113	.25 .76 1.6 3.1 6.5 9.7 12.3 16.5 24. 28. 40. .37 .82 .87 .83 1.6 3.3	1.50 2.50 3.50 5.00 6.50 8.09 10.00 14.00 19.00 25.00 .40 .50 .70 .60 1.70	434 439 512 516 520 522 525 529 CRAN 00 0 1 1 2 4 6 8 110	114 114 114 114 114 114 115 115 115 115	1.3 2.8 2.5 5.6 7.7 1.1 1.3 1.6 (ANDL) 3.4 4.3 7.7 7.7 1.1 1.2 1.2	\$ 4.90 5.90 2.30 2.45 2.65 2.90 3.85 \$ 1.85 2.00 2.30 2.30 2.65 3.15 3.85 4.75 5.80	4 5 6 7 8 9 9 10 11 12 14 15 16 17 21 22	120 120 120 120 120 120 120 120 120 120	23 .33 .5 .68 1.1 1.5 2.1 3. 4.2 6.8 10.9 15.1 31,	.18 .21 .25 .32 .42 .55 .74 1.04 1.45 2.50 3.75 5.30 8.80 .14 .15	1/4 x 1 1/4 x 2 1/4 x 3 1/4 x 4 5/16 x 1 5/16 x 2 5/16 x 3 5/16 x 3 5/16 x 4 3/8 x 2 3/8 x 3 3/8 x 3 3/8 x 3 3/8 x 3 7/16 x 1 7/16 x 2 7/16 x 3 7/16 x 4	4. 5.3 7.8 8.7 6.2 7.8 10,6 13.7 10, 12.5 16, 19.3 13.7 16.5 21.2 26.2 16.2
0 1 1/2 2 3 4 5 6 8 10 12 30 35 40 44 46 48 56	106 106 106 106 106 106 106 106 112 112 113 113 113 113	.25 .76 1.6 3.1 6.5 9.7 12.3 16.5 24. 28. 40. .37 .82 .87 .83 1.6 3.3 1.8	1.50 2.50 3.50 6.50 8.09 10.00 14.00 25.00 .50 .70 .60 1.90 1.79 .60	434 439 512 516 520 522 525 529 CRAN 00 0 1 2 4 6 8	114 114 114 114 114 114 115 115 115 115	1.3 2.8 2.5 5.6 7.7 1.1 1.3 1.6 (ANDL) 3.4 4.3 7.7 7.7 1.1 1.2 1.2	\$ 4.90 5.90 2.30 2.45 2.65 2.65 3.30 3.85 \$ 1.85 2.00 2.30 2.30 2.30 2.30 2.30 2.30 2.45 3.85	4 5 6 7 8 9 10 11 12 14 15 16 17	120 120 120 120 120 120 120 120 120 120	23 .33 .5 .68 1.1 1.5 2.1 3. 4.2 6.8 10.9 15.1 31,	.18 .21 .25 .32 .42 .55 .74 1.04 1.45 2.50 3.75 5.30 8.80	1/4 x 1 1/4 x 3 1/4 x 3 1/4 x 4 5/16 x 2 5/16 x 3 5/16 x 4 3/8 x 1 3/8 x 2 3/8 x 3 3/8 x 4 7/16 x 1 7/16 x 2 7/16 x 3 7/16 x 3 7/16 x 3 7/16 x 3 7/16 x 3 7/16 x 2 7/16 x 3	4. 5.3 7.8 8.7 6.2 7.8 10.6 13.7 10. 12.5 16. 19.3 13.7 16.5 21.2 26.2 16.2 21.2
0 1 1 1/2 2 3 4 5 6 8 10 12 30 35 40 44 44 46 48 54 58	106 106 106 106 106 106 106 106 106 112 112 113 113 113 113 112 112	.25 .76 1.6 3.1 6.5 9.7 12.3 16.5 24. 28. 40. .37 .82 .87 .83 1.6 3.3 1.1 1.8	1.50 2.50 3.50 5.00 6.50 8.09 10.00 14.00 19.00 25.00 .40 .50 .70 .60 1.70	434 439 512 516 520 522 525 529 CRAN 00 0 1 2 4 6 8 10 12 14	III 114 114 114 114 114 115 115 115 115 115	1.3 2.8 .25 56 .75 1.1 1.3 1.6 (ANDLI 43 .75 1.1 1.2 1.2 1.2 1.3 2.4 2.5 3.2	\$ 4.90 5.90 2.30 2.45 2.65 2.90 3.85 2.85 2.00 2.30 2.00	4 5 6 7 8 9 9 10 11 12 14 15 16 17 21 22	120 120 120 120 120 120 120 120 120 120	23 .33 .5 .68 1.1 1.5 2.1 3. 4.2 6.8 10.9 15.1 31,	.18 .21 .25 .32 .42 .55 .74 1.04 1.45 2.50 3.75 5.30 8.80 .14 .15	1/4 x 1 1/4 x 2 1/4 x 3 1/4 x 4 5/16 x 1 5/16 x 3 5/16 x 3 6/10 x 4 3/8 x 2 3/8 x 2 3/8 x 3 3/8 x 4 7/16 x 1 7/16 x 2 7/16 x 3 7/16 x 3 7/10 x 4 1/2 x 1 1/2 x 2 1/2 x 3	4. 5.3 7.8 8.7 6.2 7.8 10,6 13.7 10, 12.5 16, 19.3 13.7 16.5 21.2 26.2 16.2
0 1 1/2 2 3 4 5 6 8 10 12 30 35 40 44 46 48 56	106 106 106 106 106 106 106 106 112 112 113 113 113 113	.25 .76 1.6 3.1 6.5 9.7 12.3 16.5 24. 28. 40. .37 .82 .87 .83 1.6 3.3 1.8	1.50 2.50 3.50 5.80 6.50 8.09 10.00 14.00 25.00 .40 .50 .70 .60 1.70 .60	434 439 512 516 520 522 525 529 CRAN 00 0 1 2 4 6 8 10 12 14 16	114 114 114 114 114 114 114 115 115 115	HANDI 1.3 2.8 2.5 56 .75 1.1 1.3 1.6 ANDLI 38 43 .78 1.1 1.1 1.2 1.4 2.5 3.2 HANDI	\$ 4.90 5.90 2.30 2.45 2.45 2.90 3.85 ES \$ 1.85 2.00 2.30 2.30 2.30 2.30 2.30 2.45 5.2.5 \$ 1.85 2.00 2.30 2.45 5.2.5 6.2.	10 11 12 14 15 16 17 21 22 23 24 25 26	120 120 120 120 120 120 120 120 120 120	23 .33 .5 .68 1.1 1.5 2.1 3. 4.2 6.8 10.9 15.1 31, .05 .1 .2 .26 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4	.18 .21 .25 .32 .42 .55 .74 1.04 1.45 2.50 8.80 .14 .15 .16 .18 .21 .25	1/4 x 1 1/4 x 2 1/4 x 3 1/4 x 4 5/16 x 2 5/16 x 3 5/16 x 3 5/16 x 4 3/8 x 1 3/8 x 2 3/8 x 3 3/8 x 4 7/16 x 2 7/16 x 2 7/16 x 3 7/16 x 4 1/2 x 1 1/2 x 2 1/2 x 3 1/2 x 4 0/16 x 1	4. 5.3 7.8 8.7 6.2 7.8 10.6 13.7 10. 12.5 16. 19.3 13.7 16.5 21.2 26.2 21.2 22.2 27. 32.5 21.
0 1 1/2 2 3 4 5 6 8 10 12 30 35 40 44 44 46 58 59 54 A 56 A	108 108 106 106 108 108 108 108 108 112 112 112 113 113 113 113 112 112 112	.25 .76 1.6 3.1 6.5 9.7 12.3 16.5 24. 28. 40. .87 .83 1.8 3.3 1.1 1.8 3.8 6.6 1.1	1.50 2.50 3.50 5.80 6.50 8.09 10.00 14.00 25.00 .40 .50 1.70 .60 1.70 .60 1.70 2.80 1.170	434 439 512 516 520 522 525 525 CRAN 00 0 1 2 4 6 8 10 12 14 16	114 114 114 114 114 114 114 115 115 115	1.3 2.8 .25 .56 .75 1.1 1.3 1.6 ANDLI 1.3 1.6 2.4 2.4 2.5 2.4 2.5 1.1 1.2 1.0 2.4 2.5 1.1 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	\$ 4.90 5.90 2.30 2.45 2.45 2.90 3.85 ES \$ 1.85 2.00 2.30 2.30 2.30 2.30 2.30 2.45 5.2.5 \$ 1.85 2.00 2.30 2.45 5.2.5 6.2.	4 5 6 7 8 9 10 11 12 14 15 16 17 21 22 23 24 25	120 120 120 120 120 120 120 120 120 120	23 .33 .5 .68 1.1 1.5 2.1 3. 4.2 6.8 10.9 15.1 31.	.18 .21 .25 .32 .42 .55 .74 1.04 1.45 2.50 3.75 5.30 8.80	1/4 x 1 1/4 x 3 1/4 x 3 1/4 x 4 5/16 x 1 5/16 x 2 5/16 x 3 6/16 x 4 3/8 x 2 3/8 x 2 3/8 x 3 3/8 x 4 7/16 x 1 7/16 x 2 7/16 x 3 7/16 x 3 7/16 x 2 1/2 x 2 1/2 x 3 1/2 x 4 1/2 x 2 1/2 x 3 1/2 x 4 1/2 x 1 1/2 x 2	4. 5.3 7.8 8.7 6.2 7.8 10.6 13.7 10. 12.5 16. 19.3 13.7 16.5 21.2 26.2 21.2 21.2 21.2 21.2
0 1 1/2 2 3 4 5 6 8 8 10 12 30 35 40 44 44 46 54 56 58 59 54 A 56 A 58 A	108 108 106 106 108 108 108 108 108 108 112 112 112 113 113 113 113 112 112 112	.25 .76 1.6 3.1 6.5 9.7 12.3 16.5 24. 28. 40. .37 .62 .87 .83 1.6 1.8 3.8 6.6 1.1	1.50 2.50 5.00 6.50 8.00 10.00 14.00 19.00 25.00 .40 .50 1.00 1.70 1.70 2.80 1.10	434 439 512 516 520 522 525 529 CRAN 00 0 1 2 4 6 8 10 12 14 16 MACH 00 0	I 114 114 114 114 114 114 114 115 115 115	1.3 2.8 .25 .75 1.1 1.3 1.6 ANDL1 1.3 1.6 .78 .75 1.1 1.2 1.2 1.3 2.4 2.5 3.2 HANDI	\$ 4.90 5.90 2.30 2.45 2.45 2.90 3.85 ES \$ 1.85 2.00 2.30 2.30 2.30 2.30 2.30 2.45 5.2.5 \$ 1.85 2.00 2.30 2.45 5.2.5 6.2.	10 11 12 14 15 16 17 21 22 23 24 25 26	120 120 120 120 120 120 120 120 120 120	23 .33 .5 .68 1.1 1.5 2.1 3. 4.2 6.8 10.9 15.1 31, .05 .1 .2 .26 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4	.18 .21 .25 .32 .42 .55 .74 1.04 1.45 2.50 8.80 .14 .15 .16 .18 .21 .25	1/4 x 1 1/4 x 2 1/4 x 3 1/4 x 4 5/16 x 1 5/16 x 3 5/16 x 3 5/16 x 4 3/8 x 2 3/8 x 2 3/8 x 3 3/8 x 4 7/16 x 1 7/16 x 2 7/16 x 2 7/16 x 2 1/2 x 1 1/2 x 2 1/2 x 3 1/2 x 4 9/16 x 2 9/16 x 2 9/16 x 2	4. 5.3 7.8 8.7 6.2 7.8 10.6 13.7 10. 12.5 16. 19.3 13.7 16.5 21.2 26.2 16.2 21.2 21.2 27. 32.5 21. 27.5 35.3
0 1 1 1/2 2 3 4 5 6 8 10 12 30 35 40 44 46 48 54 56 58 59 54 58 59	106 106 106 106 106 106 106 108 108 112 112 112 112 113 113 113 112 112 112	.25 .76 1.6 3.1 6.5 9.7 12.3 16.5 24. 28. 40. .37 .62 .83 1.8 3.8 1.1 2.9 1.8 3.9 7.1	1.50 2.50 3.50 5.00 6.50 8.00 10.00 14.00 25.00 .40 .50 .70 .60 1.00 1.70 2.80 1.10 1.70 2.60	434 439 512 516 520 522 525 529 CRAN 00 0 1 1 2 4 6 8 10 12 14 16	IL 114 114 114 114 114 114 114 114 114 11	HANDI 1.3 2.8 2.5 56 .75 1.1 1.3 1.3 1.3 1.3 1.3 1.3 1.1 1.3 1.4 2.5 1.1 1.1 1.2 1.0 2.4 2.5 1.1 1.1 1.2 1.0 1.0 1.1 1.2 1.0 1.0 1.1 1.2 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	\$ 4.90 5.90 2.30 2.45 2.45 2.90 3.85 ES \$ 1.85 2.00 2.30 2.30 2.30 2.30 2.30 2.45 5.2.5 \$ 1.85 2.00 2.30 2.45 5.2.5 6.2.	10 11 12 14 15 16 17 21 22 23 24 25 26 27	120 120 120 120 120 120 120 120 120 120	23 .33 .5 .68 1.1 1.5 2.1 3. 4.2 6.8 10.9 15.1 31. .05 .1 .2 .26 .4 .4 .2 .26 .4 .2 .26 .26 .26 .26 .26 .26 .26 .26 .26	.18 .21 .25 .32 .42 .55 .74 1.04 1.45 2.50 3.75 5.30 8.80 .14 .15 .16 .18 .21	1/4 x 1 1/4 x 2 1/4 x 3 1/4 x 4 5/16 x 2 5/16 x 3 5/16 x 3 5/16 x 3 5/16 x 3 3/8 x 1 3/8 x 2 3/8 x 3 3/8 x 4 7/16 x 2 7/16 x 2 7/16 x 3 7/16 x 2 1/2 x 1 1/2 x 2 1/2 x 2 1/2 x 4 1/2 x 2 1/2 x 3 1/2 x 4 1/2 x 2 1/2 x 3 1/2 x 4 1/2 x 2 1/2 x 4 1/2	4. 5.3 7.8 8.7 6.2 7.8 10.6 13.7 10. 12.5 16. 19.3 13.7 16.5 21.2 26.2 21.2 27. 32.5 21. 27.5 35.3 42.8
0 1 1/2 2 3 4 5 6 8 10 12 30 35 40 44 46 48 54 56 58 59 54 A 56 A 58 A 59 A 64	108 108 106 106 106 106 108 108 108 108 112 112 112 113 113 113 112 112 112 112	.25 .76 1.6 3.1 6.5 9.7 12.3 16.5 24. 28. 40. .87 .83 1.6 3.3 1.1 1.8 3.8 6.6 1.1 2.3 1.8	1.50 2.50 3.50 5.80 6.50 8.09 10.00 14.00 25.00 .40 .50 .70 .60 1.70 2.80 1.170 2.60 4.00	434 439 512 516 520 522 525 529 CRAN 00 0 1 1 2 4 6 8 10 12 14 16 MACH	IL 114 114 114 114 114 114 114 114 114 11	HANDI 1.3 2.8 56 75 1.1 1.3 1.6 ANDLI 38 43 78 1.1 1.2 1.0 2.4 3.2 HANDI 06 09 09 193 31	\$ 4.90 5.90 2.30 2.45 2.45 2.65 2.90 3.85 ES \$ 1.85 2.00 2.30 2.30 2.30 2.30 2.30 2.30 2.30 2.30 2.45 5.20 2.30	4 5 6 7 8 9 10 11 12 14 15 16 17 21 22 23 24 25 26 27	120 120 120 120 120 120 120 120 120 120	.23 .33 .5 .68 l.1 l.5 .2 .1 3. 4.2 6.8 10.9 15.1 31, .05 .1 .2 .26 .26 .46 .47 .27 .27 .27 .27 .27 .27 .27 .27 .27 .2	.18 .21 .25 .32 .42 .55 .74 1.04 1.45 2.50 8.80 .14 .15 .21 .25 .32 .32 .42 .42 .42 .42 .42 .42 .44 .45 .46 .48 .46 .48 .46 .48 .47 .47 .47 .47 .47 .47 .47 .47 .47 .47	1/4 x 1 1/4 x 3 1/4 x 3 1/4 x 4 5/16 x 1 5/16 x 3 5/16 x 3 5/16 x 4 3/8 x 2 3/8 x 2 3/8 x 3 3/8 x 4 7/16 x 1 7/16 x 2 7/16 x 3 7/16 x 2 1/2 x 2 1/2 x 2 1/2 x 3 1/2 x 4 9/16 x 1 9/16 x 1 9/16 x 1 9/16 x 1 9/16 x 4 1/2 x 2 1/2 x 3 1/2 x 3 1/2 x 3 1/2 x 4 9/16 x 4 5/16 x 4 5/16 x 4 5/16 x 4 5/16 x 4 5/16 x 4	4. 5.3 7.8 8.7 6.2 7.8 10.6 13.7 10. 12.5 16. 19.3 13.7 16.5 21.2 26.2 16.2 21.2 21.2 21.2 21.2 21.2
0 1 1/2 2 3 4 5 6 8 8 10 12 30 35 40 44 44 45 56 58 59 54 \$ 56 \$ 6 \$ 6 \$ 6 \$ 6 \$ 6 \$ 6 \$ 6 \$ 6 \$	106 106 106 106 106 106 108 108 108 112 112 112 113 113 113 113 112 112 112	.25 .76 1.6 3.1 6.5 9.7 12.3 16.5 24. 28. 40. .37 .62 .87 .83 1.6 1.8 3.8 6.6 1.1 2.3 9.7 1.1 2.3	1.50 2.50 3.50 5.80 6.50 8.00 10.00 14.00 25.00 .40 .50 1.70 60 1.70 2.80 1.10 1.70 2.60 4.00 6.00	434 439 512 516 520 522 525 529 CRAN 00 0 1 2 4 6 8 10 12 14 16 MACH	IL 114 114 114 114 114 114 114 114 115 115	HANDI 1.3 2.8 2.5 56 .75 1.1 1.3 1.3 1.3 1.3 1.3 1.3 1.1 1.3 1.4 2.5 1.1 1.1 1.2 1.0 2.4 2.5 1.1 1.1 1.2 1.0 1.0 1.1 1.2 1.0 1.0 1.1 1.2 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	\$ 4.90 5.90 2.30 2.45 2.45 2.65 2.90 3.85 ES \$ 1.85 2.00 2.30 2.30 2.30 2.30 2.30 2.30 2.30 2.30 2.45 5.20 2.30	4 5 6 7 8 9 10 11 12 14 15 16 17 21 22 23 24 25 26 27	120 120 120 120 120 120 120 120 120 120	23 .33 .5 .68 1.1 1.5 2.1 3. 4.2 6.8 10.9 15.1 31. .05 .1 2.26 .4 .54 .72	.18 .21 .25 .32 .42 .55 .74 1.04 1.45 2.50 3.75 5.30 8.80 .14 .15 .25 .32 .42 .55	1/4 x 1 1/4 x 2 1/4 x 3 1/4 x 4 5/16 x 1 5/16 x 3 5/16 x 3 5/10 x 4 3/8 x 2 3/8 x 3 3/8 x 3 3/8 x 4 7/16 x 1 7/16 x 2 7/16 x 2 1/2 x 1 1/2 x 2 1/2 x 3 1/2 x 4 0/16 x 1 9/16 x 2 9/16 x 3 9/16 x 2 9/16 x 3 9/18 x 4 5/8 x 2	4, 5.3 7.8 8.7 6.2 7.8 10.6 13.7 10, 12.5 16, 19.3 13.7 16.5 21.2 21.2 21.2 21.2 21.2 21.2 21.2 21
0 1 1 1/2 2 3 4 5 6 8 10 12 30 35 40 44 46 48 54 56 58 59 54 56 58 59 66 68	106 106 106 106 106 106 106 108 108 108 112 112 112 113 113 112 112 112 112 112	.25 .76 1.6 3.1 6.5 9.7 12.3 16.5 24. 28. 40. .37 .62 .83 1.8 3.8 1.1 2.9 3.9 7.1 1.2 4.	1.50 2.50 5.00 6.50 8.00 10.00 14.00 19.00 25.00 .40 .50 1.00 1.00 1.00 1.00 1.10 1.10 1.10	434 439 512 516 520 522 525 529 CRAN 00 0 1 2 4 6 8 8 10 12 14 16 MACH	IL 114 114 114 114 114 114 114 114 115 115	HANDI 1.3 2.8 2.5 56 7.5 6 7.5 1.1 1.3 1.6 ANDL1 38 43 78 75 1.1 1.2 2.4 2.5 3.2 HANDI 06 09 1.3 22 31 37 62 1.3	\$ 4.90 5.90 2.30 2.45 2.45 2.65 2.90 3.85 ES \$ 1.85 2.00 2.30 2.30 2.30 2.30 2.30 2.30 2.30 2.30 2.45 5.20 2.30	4 5 6 7 8 9 10 11 12 14 15 16 17 21 22 23 24 25 26 27	120 120 120 120 120 120 120 120 120 120	.23 .33 .5 .68 l.1 l.5 .2 .1 3. 4.2 6.8 10.9 15.1 31, .05 .1 .2 .26 .26 .46 .47 .27 .27 .27 .27 .27 .27 .27 .27 .27 .2	.18 .21 .25 .32 .42 .55 .74 1.04 1.45 2.50 8.80 .14 .15 .21 .25 .32 .32 .42 .42 .42 .42 .42 .42 .44 .45 .46 .48 .46 .48 .46 .48 .47 .47 .47 .47 .47 .47 .47 .47 .47 .47	1/4 x 1 1/4 x 3 1/4 x 3 1/4 x 4 5/16 x 1 5/16 x 3 5/16 x 3 5/16 x 4 3/8 x 2 3/8 x 2 3/8 x 3 3/8 x 4 7/16 x 1 7/16 x 2 7/16 x 3 7/16 x 2 1/2 x 2 1/2 x 2 1/2 x 3 1/2 x 4 9/16 x 1 9/16 x 1 9/16 x 1 9/16 x 1 9/16 x 4 1/2 x 2 1/2 x 3 1/2 x 3 1/2 x 3 1/2 x 4 9/16 x 4 5/16 x 4 5/16 x 4 5/16 x 4 5/16 x 4 5/16 x 4	4. 5.3 7.8 8.7 6.2 7.8 10.6 13.7 10. 12.5 16. 19.3 13.7 16.5 21.2 26.2 16.2 21.2 21.2 21.2 21.2 21.2
0 1 1/2 2 3 4 5 6 8 8 10 12 30 35 40 44 44 45 56 58 59 54 \$ 56 \$ 6 \$ 6 \$ 6 \$ 6 \$ 6 \$ 6 \$ 6 \$ 6 \$	106 106 106 106 106 106 108 108 108 112 112 112 113 113 113 113 112 112 112	.25 .76 1.6 3.1 6.5 9.7 12.3 16.5 24. 28. 40. .37 .62 .87 .83 1.6 1.8 3.8 6.6 1.1 2.3 9.7 1.1 2.3	1.50 2.50 3.50 5.80 6.50 8.00 10.00 14.00 25.00 .40 .50 .70 .60 1.70 2.80 1.10 1.70 2.60 4.00 6.00 1.70 1.70 1.70 1.70 1.70 1.70 1.70 1	434 439 512 516 522 525 525 529 CRAN 00 0 1 2 4 6 8 10 12 14 16 MACH	IL 114 114 114 114 114 114 114 114 115 115	IANDI 1.3 2.8 56 75 66 75 1.1 1.3 38 43 78 77 1.1 1.2 2.5 3.2 HANDI 06 01 32 2.3 1.3 1.7	\$ 4.90 5.90 2.30 2.45 2.45 2.65 2.90 3.85 ES \$ 1.85 2.00 2.30 2.30 2.30 2.30 2.30 2.30 2.30 2.30 2.45 5.20 2.30	4 5 6 7 8 9 10 11 12 14 15 16 17 21 22 23 24 25 26 27	120 120 120 120 120 120 120 120 120 120	.23 .33 .5 .68 1.1 1.5 2.1 3. 4.2 6.8 10.9 15.1 31, .05 .1 2.26 .4 .54 .72	.18 .21 .25 .32 .42 .55 .74 1.04 1.15 .16 .21 .25 .32 .42 .55 .74 1.14 .15 .16 .18 .21 .25 .32	1/4 x 1 1/4 x 3 1/4 x 4 5/16 x 1 5/16 x 3 5/16 x 3 5/16 x 3 5/10 x 4 3/8 x 2 3/8 x 3 3/8 x 4 7/16 x 1 7/16 x 3 7/16 x 2 7/16 x 3 1/2 x 2 1/2 x 3 1/2 x 4 9/16 x 1 9/16 x 2 9/16 x 3 9/16 x 2 9/16 x 3 9/16 x 2 9/16 x 3 5/8 x 1 5/8 x 2 5/8 x 3 5/8 x 1	4. 5.3 7.8 8.7 6.2 7.8 10.6 13.7 10. 12.5 16. 19.3 13.7 16.5 21.2 26.2 21.2 21.2 22.7 32.5 21. 22.5 32.5 21. 22.5 32.5 42.8 34.3 46.6 38.7
0 1 1/2 2 3 4 5 6 8 10 12 30 35 40 44 46 48 55 6 58 59 54 A 56 A 58 A 66 68 74	106 108 106 106 106 106 106 106 106 112 112 112 113 113 113 112 112 112 112	.25 .76 1.6 3.1 6.5 9.7 12.3 16.5 24. 28. 40. .87 .83 1.6 3.3 1.1 1.8 3.8 6.6 1.1 1.2 3.9 7.1 1.2	1.50 2.50 3.50 5.80 6.50 8.09 10.00 14.00 25.00 .40 .50 .70 .60 1.70 2.80 1.170 2.60 4.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	434 439 512 516 520 522 525 529 CRAN 00 0 1 2 4 6 8 8 10 12 14 16 MACH	IL 114 114 114 114 114 114 114 114 114 11	HANDI 1.3 2.8 2.5 56 7.5 6 7.5 1.1 1.3 1.6 ANDL1 38 43 78 75 1.1 1.2 2.4 2.5 3.2 HANDI 06 09 1.3 22 31 37 62 1.3	\$ 4.90 5.90 2.30 2.45 2.45 2.90 3.85 ES \$ 1.85 2.00 2.30 2.30 2.30 2.30 2.30 2.45 5.2.5 \$ 1.85 2.00 2.30 2.45 5.2.5 6.2.	4 5 6 7 8 9 10 11 12 14 15 16 17 21 22 23 24 25 26 27	120 120 120 120 120 120 120 120 120 120	.23 .33 .5 .68 l.1 l.5 .2 .1 3. 4.2 6.8 10.9 15.1 31, .05 .1 .2 .26 .4 .2 .26 .4 .2 .26 .4 .2 .26 .4 .2 .26 .4 .2 .26 .26 .26 .26 .26 .26 .26 .26 .26	.18 .21 .25 .32 .42 .55 .74 1.04 1.45 2.50 8.80 .14 .15 .16 .18 .21 .25 .32 .42 .55 .74 1.04 .15 .16 .18 .21 .25 .74 .10 .10 .10 .10 .10 .10 .10 .10 .10 .10	1/4 x 1 1/4 x 3 1/4 x 3 1/4 x 4 5/16 x 1 5/16 x 3 5/16 x 3 5/16 x 4 3/8 x 2 3/8 x 3 3/8 x 4 7/16 x 1 7/16 x 2 7/16 x 3 7/16 x 2 1/2 x 2 1/2 x 3 1/2 x 3 1/2 x 4 5/16 x 1 5/16 x 2 5/16 x 3 5/16 x 4	4. 5.3 7.8 8.7 6.2 7.8 10.6 13.7 10. 12.5 16. 19.3 13.7 16.5 22.2 21.2 22.2 21.2 27. 32.5 35.3 42.8 26.8 34.3 46.5 54.6

Discontinued

*Threaded Eye Bolt prices; Blanks less.

STANDARD SPECIFICATIONS

FOR

WILLIAMS' +"SUPERIOR" DROP-FORGED WRENCHES (Carbon-Steel)

Williams' "Superior" Wrenches, drop-forged from improved quality carbon steel and specially processed to Williams' exacting specifications, are approximately twice as strong as old-fashioned carbon steel wrenches. 50 patterns, over 1000 sizes.

Unfinished Wrench

"Maximum Utility with Minimum Finish"

Openings milled or broached, shanks smooth, sizes stamped on heads, hardened and shot-blasted.



"Maximum Finish at Medium Price"

Openings milled or broached, surface and edges smooth, sizes stamped on heads, hardened and black enameled (baked on)—heads polished bright.





All openings are slightly larger than stated in tables to allow for clearance and variations.

Special Milling

On small quantities where special openings are specified, an extra charge will be made to cover the cost of "setting up" machines. No extra charge will be made for this special work when quantities are sufficient to cover the cost.

A sample Nut or Screw, as gauge, should accompany orders.

Special Wrenches

made to order. Prices will be quoted upon receipt of models, or drawings and specifications stating kind of finish (see above description) and quantity required.

When Ordering

please use numbers and state whether requirements are for American Standard HEAVY (U.S.S.), American Standard LIGHT (S.A.E.), American Standard REGULAR, Whitworth Standard or m/m openings and condition of finish desired.

Finished Wrenches will be supplied, unless otherwise specified.

+ REGISTERED TRADE MARK

WILLIAMS' +"SUPERIOR" ENGINEERS' WRENCHES (Carbon Steel)

15° Angle, Single Head

For Standard Nuts and Cap Screws

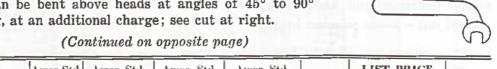


Unfinished are milled, size stamped on head, hardened and shot-blasted.

Finished are milled, surface and edges smooth, size stamped on head, hardened and black enameled (baked on)-heads bright.

Wrenches of this style but with handle tapered will be furnished on orders for the larger sizes, beginning with No. 11.

Handles can be bent above heads at angles of 45° to 90° from opening, at an additional charge; see cut at right.



		Amer.Std.	Amer. Std. Hex Head	Amer. Std. LIGHT	Amer. Std. REGULAR	Ex-	LIST	PRICE	illing
No.	Nominal Opening	Nut (U.S.S.); Size Bolt	Cap	Nut (S.A.E.); Size Bolt	Nut; Size Bolt	treme Length Approx.	Unfin- ished	Fin- ished	No.
S 000 S 00 00	3/16 1/4 5/16	1/8	1/8		*Nos. 2 & 3 *No. 4 *Nos. 5 & 6	2 1/2 2 7/8 3 1/2	\$.22 .22 .22	\$.28 .28 .28	S 000 S 00 00
700	3/8 13/32	3/16	3/16		*No. 10	4	.24 .24	.30 .30	700 0
701	7/16 1/2	1/4	1/4 5/16	1/4 5/16	1/4 & * No. 12	4 5/8 4 5/8	.20 .29	.36 .36	701 1
702	9/16 19/32	5/16	3/8	3/8	5/16	5 1/2 5 1/2	.35 .35	.44 .44	702 2
703 3	5/8 11/16	3/8	7/16	7/16	3/8	6 3/8 6 3/8	.42 .42	.52 .52	703
704 4	3/4 25/32	7/16	1/2	1/2	7/16	7 1/4 7 1/4	.52 .52	.64 .64	704 4
705 5	13/16 7/8	1/2	9/16 5/8	9/16	1/2 9/16	\$ 1/8 \$ 1/8	.62 .62	.76 .76	705 5
6A 6 706	15/16 31/32 1	9/16	3/4	5/8	5/8	9 1/4 9 1/4 9 1/4	.76 .76 .76	.92 .92 .92	6A 6 706

^{*}Amer. Std. Machine-Screw and Stove-Bolt Nuts.

Weights, pages F and H.

(Alloy Steel Wrenches, page 34)

⁺ REGISTERED TRADE MARK

WILLIAMS' + "SUPERIOR" ENGINEERS' WRENCHES (Carbon Steel)

15° Angle, Single Head For Standard Nuts and Cap Screws (Continued)

Supplied in Whitworth Standard and Metric Measure; see page 124.

The following Finished Wrenches have hole of diameter given below in end of handle:

No. 17 17A 18 18A 19 19A 19B 19C 20 20A 20B 21A 21B 21C 22A 22B Hole 5/8 5/8 3/4 3/4 7/8 7/8 7/8 7/8 1 1 1 1-1/81-1/81-1/81-1/41-1/4"

74		Amer. Std.	Amer. Std. Hex Head	Amer. Std.	Amer. Std.	Ex-	LIST	PRICE	
No.	Nominal Opening	HEAVY Nut (U.S.S.); Size Bolt	Cap Screw; Diam. Screw	Nut (S.A.E.); Size Bolt	REGULAR Nut; Size Bolt	treme Length, Approx.	Unfin- ished	Fin- ished	No.
7 707	1 1/16 1 1/8	5/8	7/8	3/4	3/4	10 1/2 10 1/2	\$.96 .96	\$ 1.14 1.14	707
8 8A 708A	1 1/4 1 5/16 1 3/8	3/4	(†1) 1 (†1 1/8)	7/8	7/8	12 12 12	1.28 1.28 1.28	1.50 1.50 1.50	8 8A 708A
9 709	1 7/16 1 1/2	7/8	1 1/8 (†1 1/4)	1	1	13 1/2 13 1/2	2,00 2,00	2.30 2.30	709
10 10A	1 5/8 1 11/16	1	1 1/4	1 1/8	1 1/8	15 15	2.80 2.80	3.20 3.20	10 10A
11 11A	1 13/16 1 7/8	1 1/8		1 1/4	1 1/4	16 1/2 16 1/2	3.80 3.80	4.20 4.20	11 11A
12 12A	2 2 1/16	1 1/4		1 3/8	1 3/8	18 1/4 18 1/4	5.20 5.20	5.70 5.70	12 12A
13 13A	2 3/16 2 1/4	1 3/8		1 1/2	1 1/2	20 20	6.70 6.70	7.30 7.30	13 13A
14 14A	2 3/8 2 7/16	1 1/2			1 5/8	22 22	8.25 8.25	9.20 9.20	14 14A
15 15A	2 9/16 2 5/8	1 5/8			1 3/4	24 24	10,00 10.00	11.20 11.20	15 15A
16 16B 16A	2 3/4 2 13/16 2 15/16	1 3/4			1 7/8	27 27 27	11.90 11.90 11.90	13.40 13.40 13.40	16 16B 16A
17A 17	3 3 1/8	2			2	30 30	18.70 18.70	20.50 20.50	17A 17
18A 18	3 3/8 3 1/2	2 1/4		********	2 1/4	34 34	27.50 27.50	29.50 29.50	18A 18
19B 19 19C 19A	3 3/4 3 7/8 4 1/8 4 1/4	2 1/2			2 1/2	38 38 38 38	39.75 39.75 39.75 39.75	42.00 42.00 42.00 42.00	19B 19 19C 19A
20B 20 20A	4 1/2 4 5/8 5	3 3 1/4			3	42 42 42	58.50 58.50 58.50	62.00 62.00 62.00	20B 20 20A
21A 21B 21C	5 3/8 5 3/4 6 1/8	3 1/2 3 3/4 4				47 47 47	107.00 107.00 107.00	114.00 114.00 114.00	21A 21B 21C
22A 22B	6 7/8 7 5/8	4 1/2 5		********		52 52	192.00 192.00	204.00 204.00	22A 22B

[†]Old style cap screw—now obsolete.

Weights, pages F and H.

(Alloy Steel Wrenches, page 34)

⁺ REGISTERED TRADE MARK

WILLIAMS' + "SUPERIOR" ENGINEERS' WRENCHES (Carbon Steel)

15° Angle, Double Head



Unfinished are milled, size stamped on head, hardened and shot-blasted.

Finished are milled, surface and edges smooth, size stamped on head, hardened and black enameled (baked on)—heads bright.

Supplied in Whitworth Standard and Metric Measure; see pages 124 and 125.

144		Amer. Std.	Amer. Std.	Amer. Std.	Amer. Std.	Ex-	LIST I	PRICE	
No.	Nominal Openings	HEAVY Nuts (U.S.S.); Size Bolts	Hex Head Cap Screws; Diam. Screws	LIGHT Nuts (S.A.E.); Size Bolts	REGULAR Nuts; Size Bolts	treme Length, Approx.	Unfin- ished	Fin- ished	No.
721 21	5/16 & 3/8 5/16 & 13/32	1/8 1/8 & 3/16	1/8 & 3/16 1/8			4 1/8 4 1/8	\$.28 .28	\$.34 .34	721 21
722 22 723	5/16 & 7/16 5/16 & 1/2 3/8 & 7/16	1/8 1/8 & 1/4	1/8 & 1/4 1/8 & 5/16 3/16 & 1/4	1/4 5/16 1/4	1/4	4 1/2 4 1/2 4 1/2	.34 .34 .34	.42 .42 .42	722 22 723
723A 23	3/8 & 1/2 13/32 & 1/2	3/16 & 1/4	3/16 & 5/16 5/16	5/16		4 7/8 4 7/8	.34 .34	.42 .42	723A 23
24 725 725A	13/32 & 19/32 7/16 & 1/2 7/16 & 9/16	1/4	1/4 & 5/16 1/4 & 3/8	1/4 & 5/16 1/4 & 3/8	1/4 1/4 & 5/16	5 1/4 5 1/4 5 1/4	.40 .40 .40	.50 .50 .50	24 725 725A
25A 725B 25	7/16 & 5/8 1/2 & 9/16 1/2 & 19/32		1/4 & 7/16 5/16 & 3/8 5/16	1/4 & 7/16 5/16 & 3/8 5/16	1/4 & 3/8 5/16	5 3/4 5 3/4 5 3/4	.40 .40 .40	.50 .50	25A 725B 25
726 26 727	1/2 & 5/8 1/2 & 11/16 9/16 & 5/8	1/4	5/16 & 7/16 5/16 3/8 & 7/16	5/16 & 7/16 5/16 3/8 & 7/16	3/8 5/16 & 3/8	6 1/4 6 1/4 6 1/4	.50 .50 .50	.62 .62 .62	726 26 727
27	19/32 & 11/16				********	6 3/4	.50	.62	27
728 28 729 29	9/16 & 3/4 19/32 & 25/32 5/8 & 3/4 11/16 & 25/32	5/16 & 7/16	3/8 & 1/2 7/16 & 1/2	3/8 & 1/2 7/16 & 1/2	5/16 & 7/16 3/8 & 7/16	7 1/4 7 1/4 7 1/4 7 7/8	.60 .60 .60	.74 .74 .74 .74	728 28 729 29
730 730A 30	5/8 & 13/16 5/8 & 7/8 11/16 & 7/8	3/8 & 1/2	7/16 & 9/16 7/16 & 5/8 5/8	7/16 7/16 & 9/16 9/16	3/8 & 1/2 3/8 & 9/16 9/16	8 1/2 8 1/2 8 1/2	.74 .74 .74	.90 .90 .90	730 730A 30
731 731A 31 731B	3/4 & 13/16 3/4 & 7/8 25/32 & 7/8 13/16 & 7/8	7/16 & 1/2 1/2	1/2 & 9/16 1/2 & 5/8 5/8 9/16 & 5/8	1/2 1/2 & 9/16 9/16 9/16	7/16 & 1/2 7/16 & 9/16 9/16 1/2 & 9/16	9 1/8 9 1/8 9 1/8 9 1/8	.74 .74 .74 .74	.90 .90 .90	731 731A 31 731B
32 732 33A 33 733	25/32 & 31/32 13/16 & 1 7/8 & 15/16 7/8 & 31/32 7/8 & 1	1/2	9/16 & 3/4 5/8 5/8 5/8 & 3/4	9/16 & 5/8 9/16 9/16	1/2 & 5/8 9/16 9/16 9/16 & 5/8	10 10 10 10 10	.90 .90 .90 .90	1.10 1.10 1.10 1.10 1.10	32 732 33A 33 733
34 734 34A	7/8 & 1 1/16 7/8 & 1 1/8 15/16 & 1 1/16	1/2 & 5/8 1/2	5/8 5/8 & 7/8	9/16 & 3/4 9/16 5/8 & 3/4	9/16 9/16 & 3/4	11 11 11	1.12 1.12 1.12	1.36 1.36 1.36	34 734 34A

Sets, pages 28 and 29.

+ REGISTERED TRADE MARK

Weights, pages F and H.

WILLIAMS' + "SUPERIOR" ENGINEERS' WRENCHES (Carbon Steel)

15° Angle, Double Head-(Continued)

	ST	Amer. Std.	Amer. Std.	Amer. Std.	Amer. Std.	Ex-	LIST	PRICE	
No.	Nominal Openings	HEAVY Nuts (U.S.S.); Size Bolts	Hex Head Cap Screws; Diam. Screws	(S.A.E.); Size Bolts	REGULAR Nuts; Size Bolts	treme Length, Approx.	Unfin- ished	Fin- ished	No
5 5	31/32 & 1 1/16 1 & 1 1/8	9/16 & 5/8	3/4 & 7/8	3/4	5/8 & 3/4	11 11	\$ 1.12 1.12	\$ 1.36 1.36	35 735
6	31/32 & 1 1/4	9/16 & 3/4		7/8		12 3/8	1.62	1.92	36
6A	1 & 1 5/16 1 1/16 & 1 1/4	5/8 & 3/4	3/4 & 1	9/4 6 7/0	5/8 & 7/8	12 3/8	1.62	1.92	736
7 7A	1 1/16 & 1 1/4 1 1/8 & 1 5/16		7/8 & 1	3/4 & 7/8	3/4 & 7/8	12 3/8 12 3/8	1.62 1.62	1.92 1.92	37
8	1 1/16 & 1 7/16	5/8 & 7/8	7/8 & 1 1/8	3/4 & 1		14	2.40	2.80	38
8A 9	1 1/8 & 1 1/2 1 1/4 & 1 7/16	3/4 & 7/8	7/8 & 1 1/8	7/8 & 1	3/4 & 1	14 14	2.40	2.80	38
9A	1 5/16 & 1 1/2	3/4 66 1/8	1 & 1 1/8	1/0 & 1	7/8 & 1	14	2.40	2.80 2.80	39
0	1 1/4 & 1 5/8	3/4 & 1	IN THE RESERVE	7/8 & 1 1/8	7/8 & 1 1/8	15 3/4	3.30	3.80	40
DA 1	1 5/16 & 1 11/16 1 7/16 & 1 5/8	7/8 & 1	1 & 1 1/4	1 & 1 1/8	7/8 & 1 1/8	15 3/4 15 3/4	3.30 3.30	3.80 3.80	40
2	1 7/16 & 1 13/16	The second secon		1 & 1 1/4		17	4.60	5.30	4:
2A 2B	1 1/2 & 1 11/16 1 1/2 & 1 7/8	*********	1 1/8 & 1 1/4	*********	1 & 1 1/8	17	4.60	5.30	4
3	1 5/8 & 1 13/16	1 & 1 1/8	1 1/8	1 1/8 & 1 1/4	1 & 1 1/4	17 17	4.60 4.60	5.30 5.30	43
1	1 5/8 & 2	1 & 1 1/4		1 1/8 & 1 3/8	*********	19	6.25	7.20	44
IA 5	1 11/16 & 1 7/8 1 13/16 & 2	1 I/8 & I 1/4	1 1/4	1 1/4 & 1 3/8	1 1/8 & 1 1/4	19 19	6.25	7.20 7.20	4:
6A	1 11/16 & 2 1/4		1 1/4		1 1/8 & 1 1/2	21	9.30	10.50	40
6 7.A	1 13/16 & 2 3/16 1 7/8 & 2 1/4	1 1/8 & 1 3/8		1 1/4 & 1 1/2	1 1/4 & 1 1/2	21	9.30	10.50	4
7	2 & 2 3/16	1 1/4 & 1 3/8		1 3/8 & 1 1/2	1 1/4 & 1 1/2	21 21	9.30 9.30	10.50 10.50	4'
8	2 & 2 3/8	1 1/4 & 1 1/2		1 3/8	**********	23	12.50	14.00	4
9 DA	2 3/16 & 2 3/8 1 7/8 & 2 5/8	1 3/8 & 1 1/2		1 1/2	1 1/4 & 1 3/4	23 25	12.50	14.00	49
D	2 3/16 & 2 9/16	1 3/8 & 1 5/8		1 1/2	1 1/4 & 1 3/4	25	16.25 16.25	18.00 18.00	50 50
DB	2 1/4 & 2 5/8 2 3/8 & 2 9/16	1 1/0 % 1 5/0		1 1/2	1 1/2 & 1 3/4	25	16.25	18.00	50
1 2	2 3/8 & 2 9/16 2 3/8 & 2 3/4	1 1/2 & 1 5/8 1 1/2 & 1 3/4			**********	25 27	18.00	19.80 22.00	51
3	2 9/16 & 2 3/4	1 5/8 & 1 3/4			*********	27	22.00	24.00	53
1A	2 1/4 & 3	1 7/0 2 0			1 1/2 & 2	30	26.25	28.50	54
1 1B	2 9/16 & 3 1/8 2 5/8 & 3	1 5/8 & 2			1 3/4 & 2	30 30	26.25 26.25	28.50 28.50	54 54
5	2 3/4 & 3 1/8	1 3/4 & 2	********		********	32	28.75	31.00	55
A	2 5/8 & 3 3/8 2 3/4 & 3 1/2	1 3/4 & 2 1/4			1 3/4 & 2 1/4	34	37.50	40.00	56
B	3 & 3 3/8	1 3/4 & 2 1/4			2 & 2 1/4	34 36	37.50 44.25	40.00	57
7	3 1/8 & 3 1/2	2 & 2 1/4				36	44.25	47.00	52
7A	3 1/8 & 3 7/8 3 & 3 3/4	2 & 2 1/2			0.1.0.1.0	38	53.00	56.00	5
7C BA	3 & 3 3/4				2 & 2 1/2 2 1/4 & 2 1/2	38 38	53.00 59.00	56.00 62.00	57 58
3	3 1/2 & 3 7/8 3 3/8 & 4 1/8	2 1/4 & 2 1/2			0.1/4 6 0.0/4	38	59.00	62.00	58
A	3 1/2 & 4 1/4	2 1/4 & 2 3/4			2 1/4 & 2 3/4	38 38	59.00 59.00	62.00 62.00	59 59
A	3 3/4 & 4 1/8			**********	2 1/2 & 2 3/4	40	71.00	75.00	60
0	3 7/8 & 4 1/4	2 1/2 & 2 3/4		*********	0.1/0.6.0	40	71.00	75.00	60
1A 1	3 3/4 & 4 1/2 3 7/8 & 4 5/8	2 1/2 & 3			2 1/2 & 3	43 43	89.00 89.00	94.00 94.00	61
2A	4 1/8 & 4 1/2				2 3/4 & 3	43	89.00	94.00	62
3	4 1/4 & 4 5/8 4 1/4 & 5 3/8	2 3/4 & 3 2 3/4 & 3 1/2				43 47	89.00 126.00	94.00	62
4	4 5/8 & 5 3/8	3 & 3 1/2				47	146.00	135.00 155.00	64

Sets, pages 28 and 29.

+ REGISTERED TRADE MARK

Weights, pages F and H.

(Alloy Steel Wrenches, page 32)

WILLIAMS' + "SUPERIOR" CHECK NUT, OR "THIN" WRENCHES

(Carbon Steel)

15° Angle, Single Head

For Check, Jam, or Lock Nuts, etc.



This class of Wrench is guaranteed amply strong for its intended purpose, but is not designed for severe service.

Supplied in Whitworth Standard and Metric Measure; see page 125.

These Wrenches are milled, surface and edges smooth, size stamped on head, hardened and black enameled (baked on)—heads bright.

No.	Nominal Opening	Amer. Std. HEAVY Jam Nut (U.S.S.); Size Bolt	Amer. Std. LIGHT Nut (S.A.E.); Size Bolt	Amer. Std. REGULAR Jam Nut; Size Bolt	Ex- treme Length, Approx.	Thickness Head	LIST PRICE Each Finished	No.
601A 601 602A 602	7/16 1/2 9/16 19/32	1/4	1/4 5/16 3/8	5/16	4 4 4 1/2 4 1/2	5/32 5/32 11/64 11/64	\$.36 .36 .44 .44	601A 601 602A 602
603A 603 604A 604	5/8 11/16 3/4 25/32	3/8	7/16	3/8 7/16	5 1/8 5 1/8 5 7/8 5 7/8	3/16 3/16 7/32 7/32	.52 .52 .64 .64	603A 603 604A 604
605A 605 606 606B	13/16 7/8 31/32 1	1/2 9/16	9/16	1/2 9/16 5/8	6 5/8 6 5/8 7 1/2 7 1/2	1/4 1/4 9/82 9/32	.76 .76 .90 .90	605A 605 606 606B
607 607A 608 608A	1 1/16 1 1/8 1 1/4 1 5/16	5/8 3/4	3/4 7/8	3/4	8 1/2 8 1/2 10 10	5/16 5/16 3/8 3/8	1.08 1.08 1.36 1.36	607 607 A 608 608 A
609 609A 610 610A	1 7/16 1 1/2 1 5/8 1 11/16	7/8	1 1/8	1 1/8	11 5/8 11 5/8 13 1/4 13 1/4	7/16 7/16 1/2 1/2	1.84 1.84 2.60 2.60	609 609A 610 610A

Weights, page G.

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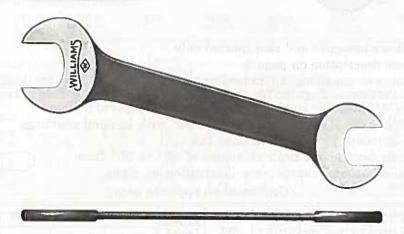
⁺ REGISTERED TRADE MARK

WILLIAMS' + "SUPERIOR" CHECK NUT, OR "THIN" WRENCHES

(Carbon Steel)

15° Angle, Double Head

For Check, Jam, or Lock Nuts, etc.



For description, see opposite page. Whitworth and Metric sizes, see page 126.

No.	Nominal Openings	Amer. Std. HEAVY Jam Nuts (U.S.S.); Size Bolts	Amer. Std. LIGHT Nuts (S.A.E.); Size Bolts	Amer. Std. REGULAR Jam Nuts; Size Bolts	Extreme Length, Approx.	Thick- ness Heads	LIST PRICE Each Fin- ished	No.
623 623D	13/32 & 1/2 7/16 & 1/2	3/16 & 1/4 1/4	5/16 1/4 & 5/16	1/4	4 5/8 4 5/8	5/32 5/32	\$.50 .50	623 623D
624A 625	7/16 & 9/16 1/2 & 19/32	1/4 & 5/16	1/4 & 3/8 5/16	1/4 & 5/16	4 3/4 4 3/4	5/32 5/32	.50 .50	624A 625
626 626S 626X 627	1/2 & 11/16 9/16 & 5/8 9/16 & 11/16 19/32 & 11/16	1/4 & 3/8 3/8 5/16 & 3/8	5/16 3/8 & 7/16 3/8	5/16 & 3/8 5/16	6 6 6	3/16 3/16 3/16 3/16	.64 .64 .64	626 626S 626X 627
629D 629	5/8 & 3/4 11/16 & 25/32	3/8 & 7/16	7/16 & 1/2	3/8 & 7/16	6 3/4 6 3/4	3/16 3/16	.72 .72	629D 629
630 630B 630E 631	11/16 & 7/8 3/4 & 13/16 3/4 & 7/8 25/32 & 7/8	3/8 & 1/2 1/2 7/16 & 1/2	9/16 1/2 & 9/16 9/16	9/16 7/16 & 1/2 7/16 & 9/16	7 1/2 7 1/2 7 1/2 7 1/2 7 1/2	7/32 7/32 7/32 7/32	.80 .80 .80	630 630B 630E 631
634 632X	7/8 & 1 1/16 15/16 & 1	1/2 & 5/8	9/16 & 3/4 5/8	9/16 5/8	8 7/8 8 7/8	1/4 1/4	1.12 1.12	634 632X
637 635G	1 1/16 & 1 1/4 1 1/8 & 1 1/4	5/8 & 3/4 3/4	3/4 & 7/8 7/8	3/4	10 1/2 10 1/2	9/32 9/32	1.68 1.68	637 635G
639 640 64 0 A	1 1/4 & 1 7/16 1 1/4 & 1 5/8 1 5/16 & 1 1/2	3/4 & 7/8 3/4 & 1	7/8 & 1 7/8 & 1 1/8	7/8 & 1	12 1/2 12 1/2 12 1/2	3/8 3/8 3/8	2,60 2.60 2.60	639 640 640A

^{*} REGISTERED TRADE MARK

WILLIAMS' + "SUPERIOR" HEX-BOX WRENCHES (Carbon Steel)

REGULAR PATTERN-15° Angle



Unhardened are broached and shot-blasted only.

Finished—see description on page 1.

Designed for use requiring an exceedingly strong tool and where head clearance is limited. Two Patterns—Regular for general work, Heavy for severe service. Wrenches larger than No. 810 Regular and No. H809 Heavy have tapered handle.

These Wrenches can also be furnished, to order, with 12-point openings.

Whitworth Standard sizes start on page 124.

Handle can be bent above head at angles of 45° to 90° from opening, at an additional charge; see illustration at right.

(Continued on opposite page)

	Nominal	Amer. Std.	Amer. Std.	Amer. Std.	Amer.	Extreme	He	ead	LIST	PRICE	
No.	Opening Across Flats	HEAVY Nut (U.S.S.)	Hex Hd. Cap Screw	LIGHT Nut (S.A.E.)	Std. REGLR. Nut	Length, Approx.	Thick- ness	Outside Diam.	Un- hard.	Fin- ished	No.
800 801A 801	13/32 7/16 1/2	3/16 1/4	3/16 1/4 5/16	1/4	1/4	3 1/2 4 4	7/32 17/64 17/64	45/64 27/32 27/32	\$.26 .30 .30	\$.36 .42 .42	800 801A 801
802A 802 803A 803	9/16 19/32 5/8 11/16	5/16	3/8 7/16	3/8	5/16	4 7/8 4 7/8 5 7/8 5 7/8	5/16 5/16 23/64 23/64	63/64 63/64 1 9/64 1 9/64	.36 .36 .42 .42	.50 .50 .58	802A 802 803A 803
804A 804	3/4 25/32	7/16	1/2	1/2	7/16	6 7/8 6 7/8	11/32 11/32	1 3/8 1 3/8	.50 .50	.70 .70	804A 804
805A 805 806 806B	13/16 7/8 31/32	1/2 9/16	9/16 5/8 3/4	9/16	1/2 9/16 5/8	7 3/4 7 3/4 8 3/4 8 3/4	25/64 25/64 7/16 7/16	1 1/2 1 1/2 1 5/8 1 5/8	.60 .60 .72 .72	.84 .84 1.00 1.00	805A 805 806 806B
807 807A	1 1/16 1 1/8	5/8	7/8	3/4	3/4	9 7/8 9 7/8	9/16 9/16	1 25/32 1 25/32	.90 .90	1.24 1.24	807 807A
808 808A 809 809A	1 1/4 1 5/16 1 7/16 1 1/2	3/4	1 1/8	7/8	7/8	11 1/2 11 1/2 13 3/8 13 3/8	9/16 9/16 21/32 21/32	2 1/16 2 1/16 2 3/8 2 3/8	1.16 1.16 1.56 1.56	1.56 1.56 2.08 2.08	808 808A 809 809A
810 810A	1 5/8 1 11/16	1	1 1/4	1 1/8	1 1/8	15 1/4 15 1/4	3/4 3/4	2 5/8 2 5/8	2.10 2.10	2.80 2.80	810 810A
811 811A	1 13/16 1 7/8	1 1/8		1 1/4	1 1/4	17 1/8 17 1/8	13/16 13/16	2 7/8 2 7/8	2.80 2.80	3.70 3.70	811 811A
812 813 813A	2 2 3/16 2 1/4	1 1/4 1 3/8		1 3/8 1 1/2	1 1/2	19 21 21	15/16 1 1	3 1/4 3 1/2 3 1/2	3.70 4.70 4.70	4.80 6.00 6.00	812 813 813A
814	2 3/8	1 1/2				23	1 1/16	3 3/4	6.00	7.50	814
815 815A	2 9/16 2 5/8	1 5/8			1 3/4	25 25	1 1/8 1 1/8	4	7.50 7.50	9.20 9.20	815 815A
816 817A	2 3/4	1 3/4			2	27 30	1 1/4 1 3/8	4 1/4 4 3/4	9.80 13.00	12.50 17.00	816 817A
817	3 1/8	2				30	1 3/8	4 3/4	13.00	17.00	817

Weights, page H.

to-4

⁺ REGISTERED TRADE MARK

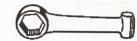
WILLIAMS' + "SUPERIOR" HEX-BOX WRENCHES (Carbon Steel)

REGULAR PATTERN-15° Angle

(Continued)

The following long Finished Wrenches have hole of size given below in end of handle: 819 819AC 7/8 Number, 817 817A 818 819A 818A 819B 820 820B Hole; diam. 5/8 3/4 3/4 7/8 5/8 7/8 1 inch

†At extra charge Nos. 818 to 820B inclusive are also furnished with "striking-face" on end of shorter handle as illustrated at right; extreme lengths as follows-



Number, Length,	818 18-1		8A -1/2 1	819 .9-1/2	819B 19-1/2	819A 20-1/4	819AC 20-1/4	820 21	8 20B 21 in.
	Nominal Amer. Std.		Amer. Std.	Extreme	Н	ead	LIST	PRICE	
No.	Across Flats	HEAVY Nut (U.S.S.)	REGLR. Nut	Length, Approx.	Thick- ness	Outside Diam.	Unhard.	Finished	No.
†818A †818	3 3/8 3 1/2	2 1/4	2 1/4	†34 †34	1 1/2 1 1/2	5 1/4 5 1/4	\$17.00 17.00	\$22.00 22.00	†818A †818
†819B †819 †819AC †819A †820B	3 3/4 3 7/8 4 1/8 4 1/4 4 1/2 4 5/8	2 1/2	2 1/2	†38 †38 †42 †42 †46 †46	1 5/8 1 5/8 1 3/4 1 3/4 1 7/8 1 7/8	5 7/8 5 7/8 6 1/2 6 1/2 7	23.00 23.00 30.00 30.00 40.00 40.00	29.00 29.00 37.00 37.00 50.00 50.00	†819B †819 †819AC †819A †820B †820

+"SUPERIOR" HEX-BOX WRENCHES—HEAVY PATTERN



For description see opposite page

H813

H813A

H814

H815

H815A

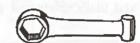
†At extra charge all Heavy Pattern Hex-Box Wrenches are also furnished with "striking-face" on end of shorter handle as illustrated at right; extreme lengths as follows-

H811

H811A

H810

H809A H810A



H817A

H817

H816

Length,		7 8	3	9 1	10	1 1	2 1	3 1	4	15	17
	Nominal	Amer. Std.	Amer. Std.	Amer. Std.	Amer.	Extreme	Не	ead	LIST	PRICE	
No.	Opening Across Flats	HEAVY Nut (U.S.S.)	Hex Hd. Cap Screw	LIGHT Nut (S.A.E.)	REGLR. Nut	Lanath	Thick- ness	Outside Diam.	Un- hard.	Fin- ished	No.
†H808 †H808A †H809 †H809A †H810 †H810A	1 1/4 1 5/16 1 7/16 1 1/2 1 5/8 1 11/16	3/4 7/8	1 1/8	7/8 1 1 1/8	7/8 1 1 1/8	†11 1/2 †11 1/2 †13 3/8 †13 3/8 †15 1/4 †15 1/4	13/16 13/16 15/16 15/16 15/16 1 1/8 1 1/8	2 1/16 2 1/16 2 3/8 2 3/8 2 5/8 2 5/8	\$ 1.70 1.70 2.30 2.30 3.00 3.00	\$ 2.20 2.20 2.95 2.95 3.90 3.90	†H808 †H808A †H809 †H809A †H810 †H810A
†H811 †H811A †H812 †H813 †H813A †H814	1 13/16 1 7/8 2 2 3/16 2 1/4 2 3/8	1 1/8 1 1/4 1 3/8 1 1/2		1 1/4 1 3/8 1 1/2	1 1/4	†17 †17 †19 †21 †21 †23	1 1/4 1 1/4 1 3/8 1 1/2 1 1/2 1 5/8	2 15/16 2 15/16 3 1/4 3 1/2 3 1/2 3 3/4	4,00 4.00 5.25 6 70 6.70 8.50	5.15 5.15 6.65 8.40 8.40 10.50	†H811 †H811A †H812 †H813 †H813A †H814
†H815 †H815A †H816 †H817A †H817	2 9/16 2 5/8 2 3/4 3 3 1/8	1 5/8			1 3/4	†25 †25 †27 †30 †30	1 3/4 1 3/4 1 7/8 2	4 1/8 4 1/8 4 9/16 4 13/16 4 13/16	10.50 10.50 14.00 19.00 19.00	13.00 13.00 17.50 24.00 24.00	†H815 †H815A †H816 †H817A †H817

Weights, page H.

Number,

H808

H808A

H809

⁺ REGISTERED TRADE MARK

WILLIAMS' + "SUPERIOR" SET SCREW WRENCHES (Carbon Steel)

22 1/2° Angle, Single Head

For Set Screws, Square Cap Screws and Nuts



These Wrenches are milled, surface and edges smooth, size stamped on head, hardened and black enameled (baked on)—heads bright.

No.	Nominal Opening	For Set Screw; Size	For Square Head Cap Screw	For Amer. Std. REGULAR Square Nut	Extreme Length, Approx.	Thickness Head	LIST PRICE Each Finished	No.
500	3/16	3/16			3	3/16	\$.28	500
501	1/4	1/4			3 1/2	1/4	.34	501
502	5/16	5/16			4 1/4	5/16	.42	502
503	3/8	3/8	1/4	1,2,	5	11/32	.50	503
504	7/16	7/16	5/16	1/4	5 3/4	3/8	.62	504
505	1/2	1/2	3/8		6 5/8	7/16	.76	505
506	9/16	9/16	7/16	5/16	7 1/2	1/2	.92	506
507	5/8	5/8	1/2	3/8	8 1/2	9/16	1.10	507
508	3/4	3/4	5/8	7/16	9 1/2	5/8	1.36	508
509	7/8	7/8	3/4	9/16	10 1/2	11/16	1.68	509
510	1	1		5/8	11 1/2	3/4	2.20	510
511	1 1/8	1 1/8	7/8	3/4	12 1/2	13/16	2.80	511

Weights, page G.

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⁺ REGISTERED TRADE MARK

WILLIAMS' + "SUPERIOR" SET SCREW WRENCHES (Carbon Steel)

22 1/2° Angle, Double Head

For Set Screws, Square Cap Screws and Nuts



These Wrenches are milled, surface and edges smooth, sizes stamped on heads, hardened and black enameled (baked on)—heads bright.

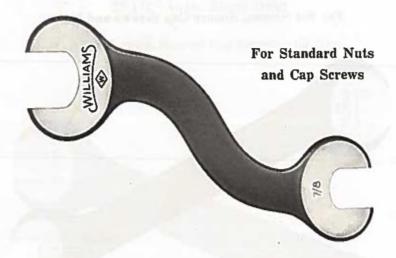
No.	Nominal Openings	For Set Screws; Size	For Square Head Cap Screws; Diam. Screws	For Amer. Std. REGULAR Square Nuts	Ex- treme Length, Approx.	Thick- ness Head	LIST PRICE Each Finished	No
523	3/16 & 1/4	3/16 & 1/4			3 1/2	7/32	\$.40	523
524 525	3/16 & 5/16 1/4 & 5/16	3/16 & 5/16 1/4 & 5/16	************		4 1/4 4 1/4	9/32 9/32	.48 .48	524 525
526 527 528 529	1/4 & 3/8 5/16 & 3/8 5/16 & 7/16 3/8 & 7/16	1/4 & 3/8 5/16 & 3/8 5/16 & 7/16 3/8 & 7/16	1/4 1/4 5/16 1/4 & 5/16	1/4 1/4	5 5 5 3/4 5 3/4	11/32 11/32 3/8 3/8	.58 .58 .70	526 526 526 526
530 531 532 533	3/8 & 1/2 7/16 & 1/2 7/16 & 9/16 1/2 & 9/16	3/8 & 1/2 7/16 & 1/2 7/16 & 9/16 1/2 & 9/16	1/4 & 3/8 5/16 & 3/8 5/16 & 7/16 3/8 & 7/16	1/4 1/4 & 5/16 5/16	6 5/8 6 5/8 7 1/2 7 1/2	7/16 7/16 1/2 1/2	.90 .90 1.08 1.08	53 53 53 53
534 535 536 537	1/2 & 5/8 9/16 & 5/8 9/16 & 3/4 5/8 & 3/4	1/2 & 5/8 9/16 & 5/8 9/16 & 3/4 5/8 & 3/4	3/8 & 1/2 7/16 & 1/2 7/16 & 5/8 1/2 & 5/8	3/8 5/16 & 3/8 5/16 & 7/16 3/8 & 7/16	8 1/2 8 1/2 9 3/4 9 3/4	9/16 9/16 5/8 5/8	1.30 1.30 1.60 1.60	53 53 53 53
538 539 540 541	5/8 & 7/8 3/4 & 7/8 3/4 & 1 7/8 & 1	5/8 & 7/8 3/4 & 7/8 3/4 & 1 7/8 & 1	1/2 & 3/4 5/8 & 3/4 5/8 3/4	3/8 & 9/16 7/16 & 9/16 7/16 & 5/8 9/16 & 5/8	11 11 12 1/2 12 1/2	11/16 11/16 3/4 3/4	2.00 2.00 2.60 2.60	53: 53: 54: 54:
542 543	7/8 & 1 1/8 1 & 1 1/8	7/8 & 1 1/8 1 & 1 1/8	3/4 & 7/8 7/8	9/16 & 3/4 5/8 & 3/4	14 14	13/16 13/16	3.50 3.50	54 54

⁺ REGISTERED TRADE MARK

SUPERIOR DROP-FORGINGS WILLIAMS AND DROP-FORGED TOOLS

WILLIAMS' + "SUPERIOR" S WRENCHES WITH FLAT HANDLE (Carbon Steel)

22 1/2° Angle, Double Head



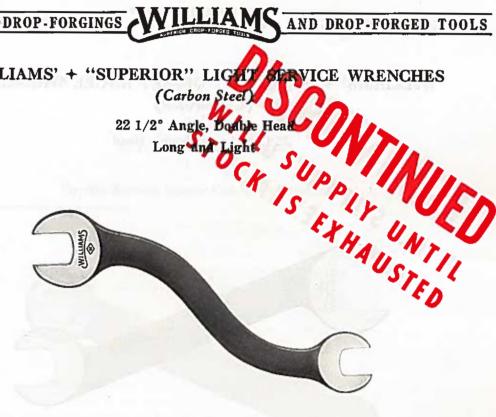
Finished are milled, surface and edges smooth, sizes stamped on heads, hardened and black enameled (baked on)—heads bright. Whitworth Standard sizes, see page 126.

No.	Nominal Openings	For Amer. Std. HEAVY Nuts (U. S. S.); Size Bolts	For Amer. Std. Hex Head Cap Screws; Diam. Screws	For Amer. Std. LIGHT Nuts (S.A.E.); Size Bolts	For Amer. Std. REGULAR Nuts; Size Bolts	Extreme Length, Approx.	LIST PRICE Finished	No.
661D 661G 661C	5/16 & 3/8 3/8 & 1/2 13/32 & 1/2	1/8 3/16 & 1/4	1/8 & 3/16 3/16 & 5/16 5/16	5/16 5/16		4 4 4	\$.44 .44 .44	661D 661G 661C
662D 662E 662B	7/16 & 1/2 7/16 & 9/16 1/2 & 19/32	1/4 1/4 & 5/16	1/4 & 5/16 1/4 & 3/8 5/16	1/4 & 5/16 1/4 & 3/8 5/16	1/4 1/4 & 5/16	5 5 5	.58 .58 .58	662D 662E 662B
663D 663E 663A 663F 663C	9/16 & 5/8 9/16 & 3/4 19/32 & 11/16 5/8 & 3/4 11/16 & 25/32	5/16 & 3/8 3/8 & 7/16	3/8 & 7/16 3/8 & 1/2 7/16 & 1/2	3/8 & 1/2	5/16 & 7/16	6 1/4 6 1/4 6 1/4 6 1/4 6 1/4	.78 .78 .78 .78 .78	663D 663E 663A 663F 663C
664A 664D 664E 664B	11/16 & 7/8 3/4 & 13/16 3/4 & 7/8 25/32 & 7/8	3/8 & 1/2 7/16 & 1/2	1/2 & 9/16 1/2 & 5/8 5/8	9/16 1/2 & 9/16 9/16	7/16 & 1/2 7/16 & 9/16 7/16 & 9/16 9/16	7 1/2 7 1/2 7 1/2 7 1/2 7 1/2	1.06 1.06 1.06 1.06	664A 664D 664E 664B
665D 665A 665B	13/16 & 1 7/8 & 31/32 7/8 & 1 1/16	1/2 & 9/16 1/2 & 5/8	9/16 & 3/4 5/8 5/8	9/16 9/16 & 3/4	1/2 & 5/8 9/16 9/16	9 9	1.44 1.44 1.44	665D 665A 665B
666B 666S	1 1/16 & 1 1/4 1 1/8 & 1 5/16	5/8 & 3/4		3/4 & 7/8		10 1/2 10 1/2	2.00 2.00	666B 666S
667A 667C	1 1/4 & 1 7/16 1 7/16 & 1 5/8	3/4 & 7/8 7/8 & 1		7/8 & 1 1 & 1 1/8		12 12	2.90 2.90	667A
668C	1 5/8 & 2	1 & 1 1/4		1 1/8 & 1 3/8		14	5.00	668C

Weights, pages G and H.

⁺ REGISTERED TRADE MARK

WILLIAMS' + "SUPERIOR" LIGHT



Unfinished are milled, sizes stamped on heads, hardened and shot-blasted.

Finished are milled, surface and edges smooth, sizes stamped on heads, hardened and black enameled (baked on)—heads bright.

Supplied in Whitworth Standard and Metric Measure; see page 126.

	March 1	Amer. Std. HEAVY	Amer, Std.	Amer. Std.	Amer. Std.	Ex-	LIST PRICE	W
No.	Nominal Openings	Nuts (U.S.S.); Size Bolts	Hex Head Cap Screws; Diam. Screws		REGULAR Nuts; Size Bolts	Length, Approx.		No.
75C 75B	1/4 & 5/16 3/8 & 7/16	1/8	3/16 & 1/4	1/4	1/4	6 1/4 6 1/4	\$.45 \$.54 .45 .54	75C 75B
75A 75	3/8 & 1/2 13/32 & 1/2	3/16 & 1/4	3/16 & 5/16 5/16	5/16 5/16		6 1/4 6 1/4	.45 .54 .45 .54	75A 75
77S	7/16 & 1/2	1/4	1/4 & 5/16	1/4 & 5/16	1/4	7 1/4	.58 .68	775
77B 77	1/2 & 9/16 1/2 & 5/8	1/4 1/4	5/16 & 3/8 5/16 & 7/16	5/16 & 3/8 5/16 & 7/16	5/16 3/8	7 1/4 7 1/4	.58 .68 .58 .68	77B
79S	9/16 & 5/8		3/8 & 7/16	3/8 & 7/16	5/16 & 3/8	8 1/4	.73 .86	795
79D 79 79C	19/32 & 11/16 5/8 & 11/16 5/8 & 3/4	5/16 & 3/8 3/8	7/16 7/16 & 1/2	7/16 7/16 & 1/2	3/8 3/8 & 7/16	8 1/4 8 1/4 8 1/4	.73 .86 .73 .86 .73 .86	79D 79 79C
81H	5/8 & 13/16		7/16 & 9/16	7/16	3/8 & 1/2	9 1/4	.93 1.10	81H
81B 81A	3/4 & 13/16 3/4 & 7/8	1/2	1/2 & 9/16 1/2 & 5/8	1/2 1/2 & 9/16	7/16 & 1/2 7/16 & 9/16	9 1/4 9 1/4	.93 1.10 .93 1.10	81B 81A
83B 83C	7/8 & 1 7/8 & 1 1/16	1/2 1/2 & 5/8	5/8 & 3/4 5/8	9/16 9/16 & 3/4	9/16 & 5/8 9/16	10 3/8 10 3/8	1.16 1.40 1.16 1.40	83B 83C
85	1 & 1 1/8		3/4 & 7/8		5/8 & 3/4	12	1.65 2.00	85
85C	1 1/16 & 1 1/4	5/8 & 3/4		3/4 & 7/8		12	1.65 2.00	85C

Sets, pages 28 and 29.

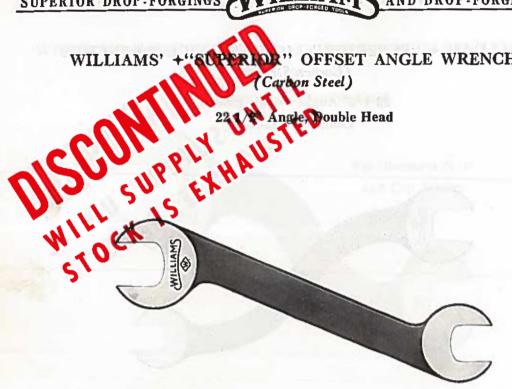
REGISTERED TRADE MARK

Weights, page F.

(Alloy Steel Wrenches, page 34)

AND DROP-FORGED TOOLS SUPERIOR DROP-FORGINGS

" OFFSET ANGLE WRENCHES



These Wrenches are milled, surface and edges smooth, sizes stamped on heads, hardened and black enameled (baked on)-heads bright.

Whitworth Standard sizes, see page 126.

No.	Nominal Openings	For Amer. Std. HEAVY Nuts (U.S.S.); Size Bolts	For Amer. Std. Hex Head Cap Screws; Diam. Screws		For Amer. Std. REGULAR Nuts; Size Bolts	Ex- treme Length, Approx.	LIST PRICE Each Finished	No.
760A 760B	5/16 & 1/2 13/32 & 1/2	1/8 & 1/4 3/16 & 1/4	1/8 & 5/16 5/16	5/16 5/16		4 3/4 4 3/4	\$.50 .50	760A 760B
760 Y	7/16 & 1/2	1/4	1/4 & 5/16	1/4 & 5/16	the first of the second	4 3/4	.50	760 Y
761X 761	1/2 & 9/16 1/2 & 5/8	1/4	5/16 & 3/8 5/16 & 7/16	5/16 & 3/8 5/16 & 7/16	5/16	5 3/4 5 3/4	.62	761X 761
761Z 761C	9/16 & 5/8 19/32 & 11/16	5/16 & 3/8	3/8 & 7/16	3/8 & 7/16	5/16 & 3/8	5 3/4 5 3/4	.62 .62	761Z 761C
762Y	5/8 & 3/4		7/16 & 1/2	7/16 & 1/2	3/8 & 7/16	7	.80	762Y
762B 762C	11/16 & 25/32 11/16 & 7/8	3/8 & 7/16 3/8 & 1/2	5/8	9/16	9/16	7 7	.80	762B 762C
763 Y 763 A	3/4 & 7/8 25/32 & 7/8	7/16 & 1/2	1/2 & 5/8 5/8	1/2 & 9/16 9/16		8 1/4 8 1/4	1.06 1.06	763 Y 763 A
764H	13/16 & 1		9/16 & 3/4		1/2 & 5/8	9 1/2	1.44	764H
764D 764B	15/16 & 1 1/16 31/32 & 1 1/16	9/16 & 5/8		5/8 & 3/4 3/4		9 1/2 9 1/2	1.44	764D 764B
765A 765C	1 1/16 & 1 1/4 1 1/4 & 1 7/16	5/8 & 3/4		3/4 & 7/8 7/8 & 1		11 11	1.92 1.92	765A 765C

Weights, page H.

REGISTERED TRADE MARK

WILLIAMS' +"SUPERIOR" SQUARE BOX WRENCHES (Carbon Steel)

22 1/2° Angle, Single Head

For Set Screws, Square Cap Screws and Nuts



Unhardened are broached and shot-blasted.

Finished are broached, surface and edges smooth, hardened and black enameled (baked on)—heads bright.

These Wrenches can also be furnished, to order, with 8-point openings.

No.	Nominal Opening	For Set Screw; Size	For Square Head Cap Screw	Amer. Std. REGLR. Square Nut	Extreme Length, Approx.	Head		LIST PRICE		
						Thickness	Outside Diam.	Unhard- ened	Fin- ished	No.
580 581 582	3/16 1/4 5/16	3/16 1/4 5/16			3 3 3/8 3 3/4	1/4 9/32 5/16	1/2 5/8 11/16	\$.22 .24 .28	\$.30 .34 .40	580 581 582
583 584	3/8 7/16	3/8 7/16	1/4 5/16	1/4	4 1/4 4 7/8	3/8 7/16	27/32 31/32	.32	.48 .56	583 584
585 586	1/2 9/16	1/2 9/16	3/8 7/16	5/16	5 1/2 6 1/4	15/32 1/2	1 1/16 1 3/16	.46 .56	.68 .82	585 586
587 588	5/8 3/4	5/8 3/4	1/2 5/8	3/8 7/16	7 8	9/16 5/8	I 5/16 I 9/16	.70 .88	1.00 1,24	587 588
589 590	7/8	7/8	3/4	9/16 5/8	9 10	11/16 3/4	1 25/32	1.20 1.60	1.62 2.10	589 590

⁺ REGISTERED TRADE MARK

WILLIAMS' +"SUPERIOR" MACHINE WRENCHES (Carbon Steel)

Extra Heavy for Planers

Milling Machines, Lathes, Drill Presses, etc.



These Wrenches are milled, surface and edges smooth, size stamped on large head, hardened and black enameled (baked on)—heads bright.

No.	Large Head for U. S. Standard Nut		Small Head						LIST	
			Nominal	For Set	For Square	Amer. Std.	Ex- treme Length,	Thick- ness	PRICE Each	No.
	Nominal Opening	Size Bolt	Opening	Screw; Size	Head Cap Screw	REGLR. Square Nut	Approx.	Heads	Fin- ished	m1.5
595 595B 595C	11/16 11/16 11/16	3/8 3/8 3/8	3/8 7/16 1/2	3/8 7/16 1/2	1/4 5/16 3/8	1/4	6 1/2 6 1/2 6 1/2	17/32 17/32 17/32	\$1.16 1.16 1.16	595 595B 595C
595D 595E 595F	25/32 25/32 25/32	7/16 7/16 7/16	3/8 7/16 1/2	3/8 7/16 1/2	1/4 5/16 3/8	1/4	6 1/2 6 1/2 6 1/2	17/32 17/32 17/32	1.16 1.16 1.16	595D 595E 595F
596 596B 596C 596D	7/8 7/8 7/8 7/8	1/2 1/2 1/2 1/2	7/16 1/2 9/16 5/8	7/16 1/2 9/16 5/8	5/16 3/8 7/16 1/2	1/4 5/16 3/8	7 1/2 7 1/2 7 1/2 7 1/2 7 1/2	19/32 19/32 19/32 19/32	1.44 1.44 1.44 1.44	596 596B 596C 596D
596E 596F 596G 596H	31/32 31/32 31/32 31/32	9/16 9/16 9/16 9/16	7/16 1/2 9/16 5/8	7/16 1/2 9/16 5/8	5/16 3/8 7/16 1/2	1/4 5/16 3/8	7 1/2 7 1/2 7 1/2 7 1/2 7 1/2	19/32 19/32 19/32 19/32	1.44 1.44 1.44 1.44	596E 596F 596C 596H
597 597B 597G	1 1/16 1 1/16 1 1/16	5/8 5/8 5/8	9/16 5/8 3/4	9/16 5/8 3/4	7/16 1/2 5/8	5/16 3/8 7/16	8 1/2 8 1/2 8 1/2	11/16 11/16 11/16	1.92 1.92 1.92	597 597B 597C
598 598B 598C	1 1/4 1 1/4 1 1/4	3/4 3/4 3/4	3/4 7/8	3/4 7/8	5/8 3/4	7/16 9/16 5/8	10 10 10	13/16 13/16 13/16	2.70 2.70 2.70	598 598B 598C
598D 598E 598F	1 7/16 1 7/16 1 7/16	7/8 7/8 7/8	3/4 7/8	3/4 7/8	5/8 3/4	7/16 9/16 5/8	10 10 10	13/16 13/16 13/16	2.70 2.70 2.70	598E 598E 598F

⁺ REGISTERED TRADE MARK

+"SUPERIOR" TOOL POST WRENCHES (Carbon Steel)

For Set Screws

For Nuts and Set Screws







Nos. 554 to 557

Nos. 562B to 568D

Finished are milled and broached, surface and edges smooth, sizes stamped, hardened and black enameled (baked on)—heads bright.

For Set Screws

No.	Open End for Set Screw; Size	Closed End for Set Screw; Size	Extreme Length, Approx.	Thickness Hends	LIST PRICE Finished	No.
554	7/16	7/16	5 1/2	1/2	\$1.12	554
555 555B 555C	1/2 9/16 9/16	1/2 1/2 9/16	6 6	9/16 9/16 9/16	1.24 1.24 1.24	555 555B 555C
556 556B 556C	5/8 11/16 11/16	5/8 5/8 11/16	7 7 7	5/8 5/8 5/8	1.44 1.44 1.44	556B 556C
557	3/4	3/4	7 5/8	11/16	1.64	557

*For Nuts and Set Screws

No.	Nominal Opening	Amer. Std. HEAVY Nut (U.S.S.)	Amer. Std. REGULAR Nut Size Bolt	Closed End for Set Screw; Size	Extreme Length, Approx.	Thickness Heads	LIST PRICE Finished	No.
562B 562	5/8 11/16	3/8	3/8	9/16 9/16	6 1/2 6 1/2	1/2	\$1.32 1.32	562B 562
563E 563F 563G 563H	13/16 13/16 13/16 13/16		1/2 1/2 1/2 1/2 1/2	7/16 1/2 9/16 5/8	7 7 7 7	9/16 9/16 9/16 9/16 9/16	1.44 1.44 1.44 1.44	563E 563F 563G 563H
563 563B 563C 563D	7/8 7/8 7/8 7/8 7/8	1/2 1/2 1/2 1/2 1/2	9/16 9/16 9/16 9/16 9/16	7/16 1/2 9/16 5/8	7 7 7 7	9/16 9/16 9/16 9/16	1.44 1.44 1.44 1.44	563 563B 563C 563D
564C 564	1 1/16	5/8	5/8	5/8 5/8	7 1/2 7 1/2	5/8 5/8	1.64 1.64	564C 564
565C 565	1 1/16	5/8	5/8	3/4 3/4	8	5/8 5/8	1.94	565C 565
566C 566D 566 566B	1 1/8 1 1/8 1 1/4 1 1/4	3/4 3/4	3/4 3/4	3/4 7/8 3/4 7/8	9 1/4 9 1/4 9 1/4 9 1/4	3/4 3/4 3/4 3/4	2.40 2.40 2.40 2.40 2.40	566D 566D 566 566B
567D 567 567E 567F 567B 567C	1 1/8 1 1/4 1 5/16 1 5/16 1 7/16 1 7/16	3/4 7/8 7/8	3/4 7/8 7/8	1 7/8 1 7/8	10 10 10 10 10 10	7/8 7/8 7/8 7/8 7/8 7/8 7/8	3.20 3.20 3.20 3.20 3.20 3.20	567E 567E 567E 567E 567E
568E 568F 568 568B	1 1/2 1 1/2 1 5/8 1 5/8	1 1	1	7/8 1 7/8	11 11 11 11	15/16 15/16 15/16 15/16	4.40 4.40 4.40 4.40	568E 568F 568 568B
568G 568H 568C 568D	1 11/16 1 7/8 1 13/16 2	1 1/8 1 1/4	1 1/8 1 1/4	1 1 1 1	11 11 11 11	15/16 15/16 15/16 15/16	4.40 4.40 4.40 4.40	568C 568C 568C

^{*}Whitworth Standard sizes start on page 124.

⁺ REGISTERED TRADE MARK

WILLIAMS' + "SUPERIOR" CONSTRUCTION WRENCHES (Carbon Steel)

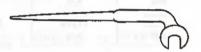


These Wrenches with deep opening provide substantial bearing on square nuts. The long handle is round for the greater part of its length, with tapered end for easy insertion into bolt holes when bringing them into line.

Hardened are milled, hardened all over, shot-blasted; heads not bright.

Whitworth Standard sizes, see page 125.

Handle can be bent above head at angles of 45° to 90° from opening, at an additional charge; see illustration at right.



No.	Nominal Opening	For Amer. Std. HEAVY Nut (U.S.S.); Size Bolt	For Amer. Std. REGULAR Nut Size Bolt	Extreme Length, Approx.	Thickness Head	LIST PRICE Hardened	No.
201A 201 201B 202	7/16 1/2 9/16 19/32	1/4 5/16	1/4	9 1/2 9 1/2 9 1/2 9 1/2 9 1/2	3/8 3/8 3/8 3/8 3/8	\$.75 .75 .75 .75	201A 201 201B 202
203A 203 204A 204	5/8 11/16 3/4 25/32	3/8	3/8 7/16	12 12 12 12	7/16 7/16 7/16 7/16	.95 .95 .95	203A 203 204A 204
205A *205 *206 206B	13/16 7/8 31/32	1/2 9/16	1/2 9/16 5/8	14 1/2 14 1/2 14 1/2 14 1/2	17/32 17/32 17/32 17/32	1.20 1.20 1.20 1.20	205A *205 *206 206B
*207 207A	1 1/16 1 1/8	5/8	3/4	17 17	5/8 5/8	1.55 1.55	*207 207A
*208 208A	1 1/4 1 5/16	3/4	7/8	19 19	11/16 11/16	2.05 2.05	*208 208A
*209 209A	1 7/16 1 1/2	7/8	1	21 21	3/4 3/4	2.70 2.70	*209 209A
210 210A	1 5/8 1 11/16	1	1 1/8	23 23	27/32 27/32	3.60 3.60	210 210A
211 211A 212	1 13/16 1 7/8 2	1 1/8 1 1/4	1 1/4	25 25 25	15/16 15/16 15/16	5.30 5.30 5.30	211 211A 212

*Carried in stock with short tangs for oil construction and derrick service. Details on request,

Weights, page F.

+ REGISTERED TRADE MARK

(Alloy Steel Wrenches, page 35)

WILLIAMS' +"SUPERIOR" STRUCTURAL WRENCHES (Carbon Steel)

Straight Opening



The jaws of these Wrenches are narrow and long, providing substantially full bearing on square nuts. The long handle is round for the greater part of its length, with tapered end for easy insertion into bolt holes when bringing them into line.

The abrupt offset and angle of handle provide for clearance of obstructions, even when these are close to the head, and safety to the operator's hands. The wrench is particularly well balanced. When thrust into slit of scabbard or belt-loop the "step-up" of the round above the flat part of handle acts as a stop. It retains the wrench, yet allows its ready release.

For explanation of finish, see previous page. Whitworth Standard sizes, see page 126.

		Amer. Std.	Amer. Std.	Extreme	Thick-	Handl	e Offset	LIST		
No.	Nominal Opening	HEAVY Nut (U.S.S.); Size Bolt	REGLR. Nut; Size Bolt	Length, Approx.	ness Head	At Head	At End	PRICE Hardened	No.	
901A 901 901B 902	7/16 †1/2 9/16 †19/32	1/4	1/4 5/16	9 1/2 9 1/2 9 1/2 9 1/2 9 1/2	11/32 11/32 11/32 11/32	9/16 9/16 9/16 9/16 9/16	1 1/2 1 1/2 1 1/2 1 1/2	\$.80 .80 .80 .80	901A 901 901B 902	
903A *903 904A 904	5/8 †11/16 3/4 †25/32	3/8	3/8	12 12 12 12	7/16 7/16 7/16 7/16	3/4 3/4 3/4 3/4	1 11/16 1 11/16 1 11/16 1 11/16	1.05 1.05 1.05 1.05	903A *903 904A 904	
905A 905B * 905	13/16 7/8 †7/8	1/2	1/2 9/16	14 1/2 14 1/2 14 1/2	17/32 17/32 17/32	7/8 7/8 7/8	1 7/8 1 7/8 1 7/8	1.40 1.40 1.40	905A 905B *905	
*906	1		5/8	14 1/2	17/32	7/8	1 7/8	1.40	*906	
*907 907A	†1 1/16 1 1/8	5/8	3/4	17 17	5/8 5/8	1 1	2 3/8 2 3/8	1.85 1.85	*907 907A	
*908 908A	†1 1/4 1 5/16	3/4	7/8	19 19	11/16 11/16	1 1/8 1 1/8	2 3/4 2 3/4	2.35 2.35	*908 908A	
* 9 09	†1 7/16 1 1/2	7/8	1	} 21	3/4	1 1/4	3 1/16	3.00	*909	
*910	†1 5/8 1 11/16	1	1 1/8	} 23	13/16	1 7/16	3 3/8	4.10	*910	
910A	†1 13/16 1 7/8	1 1/8	1 1/4	} 23	13/16	1 7/16	3 3/8	4.10	910A	
911	†1 13/16 1 7/8	1 1/8	1 1/4	} 25	7/8	1 5/8	3 11/16	6.15	911	
912	†2	1 1/4		25	7/8	1 5/8	3 11/16	6.15	912	

†Based on U. S. S. Nut Formula. Actual openings are 1/32 to 1/16" larger for proper clearance on rough nuts and bolts. *Carried in stock with short tangs for oil construction and derrick service. Details on request.

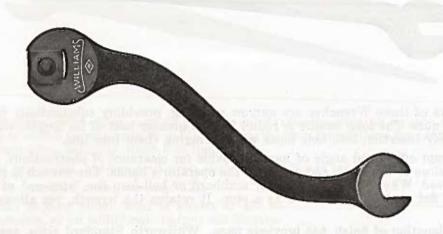
(Alloy Steel Wrenches, page 35)

Weights, page H.

⁺ REGISTERED TRADE MARK

WILLIAMS' +"SUPERIOR" HEAVY "S" OR CAR WRENCHES (Carbon Steel)

22 1/2° Angle, Double Head Long Leverage



Unhardened are milled only.

Hardened are milled, hardened all over, shot-blasted; heads not bright.

		Amer. Std.	Amer.	Ex-	LIST F	PRICE	3100
No.	Nominal Openings HEAVY Nuts (U.S.S.); Size Bolts		Std. REGULAR Nuts; Size Bolts	treme Length, Approx.	Unhard- ened	Hard- ened	No.
367A 367	5/8 & 13/16 11/16 & 7/8	3/8 & 1/2	3/8 & 1/2	12 12	NO.	\$1.50 1.50	367A 367
370 370B	7/8 & 1 1/16 1 & 1 1/8	1/2 & 5/8	5/8 & 3/4	19 19	DURATION'	2.50 2.50	370 370B
* 372A 373	1 1/16 & 1 1/4 1 1/8 & 1 5/16	5/8 & 3/4	3/4 & 7/8	20 20	"THE D	3.10 3.10	372A 373
376	1 5/16 &r 1 1/2		7/8 & 1	21		3.70	376
377 † 378A 379	1 5/16 & 1 11/16 1 7/16 & 1 5/8 1 1/2 & 1 11/16	7/8 & 1	7/8 & 1 1/8 1 & 1 1/8	22 22 22	DISCONTINUED FOR	4.50 4.50 4.50	377 378A 379
382	1 11/16 & 1 7/8		1 1/8 & 1 1/4	23	Z	5.30	382
383B	1 7/8 & 2 1/4	3	1 1/4 & 1 1/2	24	O O	6.30	383B
387	1 13/16 & 2 3/8	1 1/8 & 1 1/2		25	OISC	9.00	387

^{*}No. 372A supersedes Old No. 373 previously listed for 5/8 & 3/4" U. S. Nuts. †No. 378A supersedes Old No. 379 previously listed for 7/8 & 1" U. S. Nuts. Weights, page F.

⁺ REGISTERED TRADE MARK

WILLIAMS' +"SUPERIOR" FACE SPANNERS

(Carbon Steel)



These Wrenches have surfaces smoothed, pins milled, hardened all over and black enameled.

-11		Pins		Span of Jaws	Length	Thick-	LIST	A MINT
No.	Distance C to C	Diameter Milled	Length	in Clear	from C. of Pins	ness	PRICE Each Finished	No.
418 420	1 1/4	3/16 7/32	3/16 7/32	11/16 7/8	4 1/2 5	3/16 3/16	\$.60	418 420
422 424	1 1/2 1 3/4	7/32 7/32	7/32 7/32	I 1/8 I 3/8	5 1/2 6	3/16 7/32	.74	422 424
426 428	$\begin{array}{c} 2 \\ 2 \\ 1/4 \end{array}$	1/4 1/4	1/4 1/4	1 19/32 1 27/32	6 1/2	7/32 7/32	.96 1.10	426 428
430 432 434	2 1/2 2 3/4	9/32 9/32 5/16	9/32 9/32 5/16	$\begin{array}{ccc} 2 & 1/32 \\ 2 & 9/32 \\ 2 & 1/2 \end{array}$	7 1/2 8 8 1/2	1/4 1/4 1/4	1.28 1.48 1.70	430 432
436 438	3 1/4 3 1/2	5/16 5/16	5/16 5/16	$\frac{2}{3} \frac{1/2}{3/4}$	9 1/8 9 3/4	1/4 1/4	1.94 2.20	434 436 438
440 442	3 3/4	3/8 3/8	3/8 3/8	3 3/16 3 7/16	10 3/8 11	1/4 1/4	2.50 2.90	440 442

+"SUPERIOR" PIN SPANNERS

(Carbon Steel)



Pins are forged integral with wrench. For conditions of finish, see above.

Number	For Circle; Diameter	Extreme Length, Approx.	Finished Diameter Pin	LIST PRICE Each Finished	Number
452 453	1 1/4	4 1/0	3/16 13/64	\$.54	452 453
454	1 1/4 1 1/2	4 1/2 5	7/32	.58	453
455	1 3/4	5 1/2	15/64	.62	455
456	2	6	1/4	.66	456
457	2 1/4	6 1/2	17/64	.70	457
458	2 1/2	7	9/32	.72	458
459	2 3/4	7 1/2	19/64	.78	459
460	3	8	5/16	.84	460
461	3 1/4	8 1/2	21/64	.90	461
462	3 1/2	9	11/32	.96	462
463	3 3/4	9 1/2	23/64	1.02	463
464	4	10	3/8	1.08	464
466	5	12	7/16	1.44	466
468	5 6	14	1/2	1.96	468

Weights, page G.

+ REGISTERED TRADE MARK

WILLIAMS' +"SUPERIOR" HOOK SPANNERS



Made especially to service Face Plate Draw Nuts used on taper-nose spindles for new design lathes. Very efficient, also, for general work.

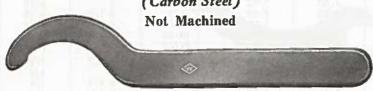
Supplied with bearing pads and hook machined; hardened, black enameled (baked).

No.	For Circle; Diameter	Extreme Length	Thickness, Hook End	
414	* 7 3/8	20	5/8	\$5.50
415	* 9 1/4	23 1/4	11/16	8.00
416	*12 1/2	30 3/4	3/4	14.00

*Can be furnished to order for circle 1/8" larger.

FLAT HOOK SPANNERS

(Carbon Steel)



The diameter of circle which the unfinished forgings fit is given in second column of table, but wrenches will finish to sizes stated in third column.

No.	Forgings for Circle; Diameter	Forgings will finish for Circles; Diameter	Extreme Length, Approx.	Thickness	PRICE Each	No.
403	1 1/4	1 to 1 1/4	4 3/4	7/32	\$.40	403
404	1 1/2	1 3/8 to 1 5/8	6	1/4	.46	404
405	2	1 3/4 to 2	7 1/8	1/4	.52	405
406	2 1/4	2 1/8 to 2 3/8	8 7/16	1/4	.60	406
407	2 5/8	2 1/2 to 2 3/4	9 3/4	1/4	.68	407
408	3 1/8	2 7/8 to 3 1/4	11	5/16	.80	408
409	3 3/4	3 3/8 to 3 7/8	12	5/16	.96	409
410	4 3/8	4 to 4 1/2	13	5/16	1.16	410
412	5 3/4	5 1/4 to 5 3/4	15	7/16	1.70	412

LIGHT HOOK SPANNERS

(Carbon Steel)



	For	Extreme		Hook		Diameter	LIST	NT.
No.	Circle; Diameter	†Length, Approx.	Length	Width	Thickness	Handle	PRICE Each	No.
491	1 3/16	6 1/2	1/16	3/8	7/32	3/8	\$.30	491
493	1 3/4	7 1/2	1/8	3/8	7/32	3/8	.34	493
494	2 1/8	8	1/8	3/8	7/32	3/8	.36	494
495	2 1/2	8 1/4	1/8	3/8	7/32	3/8	.40	495
496	2 3/4	8 1/2	1/8	3/8	7/32	3/8	.44	496
497	3	8 3/4	1/8	3/8 3/8	7/32	3/8	.48	497
498	3 1/2	9	1/8	3/8	7/32	3/8 3/8 3/8	.52	498

†Length of handle can be varied if desired.

REGISTERED TRADE MARK

Weights, pages F and G.

WILLIAMS' +"SUPERIOR" ADJUSTABLE FACE SPANNERS (Carbon Steel)



Drop-forged from a strong, tough grade of carefully selected steel, this is a desirable and dependable tool for service where Center to Center dimensions vary.

These Wrenches have pins milled, surfaces smooth, hardened, black enameled (baked on).

No.	Extreme Capacity	Extreme Length, Approx.	Diameter of Pins	LIST PRICE Each Finished	No.
482	2	6 3/8	3/16	\$1.59	482
483	3	8 1/4	1/4	2.20	483
484	4	10 3/8	5/16	3.20	484

+"SUPERIOR" ADJUSTABLE HOOK SPANNERS

(Carbon Steel)



These Spanners offer an unusual combination of strength and ready adjustment; each tool provides for a wide range of sizes—see table. Drop-forged from a strong, tough grade of carefully selected steel, surfaces smoothed, black enameled (baked on); jaw hardened and tempered.

Sold individually, or in Set No. 400 which is especially serviceable on spindle bearings of lathes, milling machines and grinding machines. Also, for adjusting collars and slotted rings used on many types of automatic machines.



SET No. 400 LIST PRICE, Complete—\$7.25 In Leatherette Roll 1 Each, Nos. 471, 472, 474.

N.	Capacity for	Extreme	Thic	kness	Depth	LIST	No.
No.	Circles, Diameter	Length, Approx.	Handle	Hook	Hook	PRICE Finished	No.
471	3/4 to 2	6 3/8	1/4	11/32	1/8	\$1.75	471
472	1 1/4 to 3	8 1/8	9/32	13/32	5/32	2.00	472
474	2 to 4 3/4	11 3/8	5/16	15/32	3/16	2.75	474

Alloy Steel Adjustable Hook Spanners, page 42.

+ REGISTERED TRADE MARK

Weights, page G.

WILLIAMS' +"SUPERIOR" SOCKET WRENCHES (Carbon Steel)



STRAIGHT PATTERN

With or Without Pin-Handle

Unhardened are broached and shot-blasted.

* Finished are broached, surface smooth, hardened and black enameled (baked on); face bright.

Whitworth Standard sizes, see page 127.

Special broaching to order in reasonable quantities.

(Continued on following page)

* Finished Wrenches with Pin-Handles will be supplied, unless otherwise specified.

		HEXAG	ON OPE	NINGS					LIST	PRICE		}
No.	Nominal Opening Across Flats	Amer. Std. HEAVY Nut (U.S.S.); Size Bolt	Amer. Std. Cap Screw; Diam. Screw	Amer. Std. LIGHT Nut (S.A.E.); Size Bolt		Diam. of Head	Extreme Length, Approx.	Unha With- out Pin- Han- dle	With Pin- Han- dle	With- out Pin- Han- dle	With Pin- Han- dle	No.
*961A *962D	5/16 3/8	1/8	3/16			1/2 5/8	4 1/4 4 1/2	:	=	=	\$.80 .88	961A* 962D*
*963A *963D *964A	13/32 7/16 1/2	3/16	1/4 5/16	1/4 5/16	1/4	11/16 11/16 3/4	4 7/8 4 7/8 5 1/4	NOIL	1 0 N	110 N	.98 .98 1.04	963A* 963D* 964A*
*965D *965A *966D	9/16 19/32 5/8	5/16	3/8 7/16	3/8	5/16 3/8	7/8 7/8	5 3/4 5 3/4 6 1/8	URA	URA	URA	1.16 1.16 1.26	965D* 965A* 966D*
*967A *967D *968A *968D	11/16 3/4 25/32 13/16	3/8 7/16	1/2	1/2	7/16	1 1/8 1 1/8 1 1/4 1 1/4	6 1/2 6 1/2 7	THE D	THE D	THE D	1.42 1.42 1.54 1.54	967A* 967D* 968A* 968D*
*969A *970S *970A *970D	7/8 15/16 31/32	9/16	5/8	9/16 5/8	9/16	1 3/8 1 1/2 1 1/2 1 1/2	7 3/8 7 7/8 7 7/8 7 7/8	OR	0 R	O	1.74 1.96 1.96 1.96	969A* 970S* 970A* 970D*
*971A *971D 973A 973B	1 1/16 1 1/8 1 1/4 1 5/16	5/8	7/8	3/4	3/4	1 5/8 1 5/8 1 7/8 1 7/8	8 1/4 8 1/4 9 1/8 9 1/8	ED FC	ED FC	ED FC	2.20 2.20 3.00 3.00	971A* 971D* 973A 973B
975A 975D 976A 976B	1 7/16 1 1/2 1 5/8 1 11/16	7/8	1 1/8	1 1/8	1 1/8	2 1/8 2 1/8 2 3/8 2 3/8	10 10 10 3/8 10 3/8	NIIN	N	N	3.70 3.70 4.24 4.24	975A 975D 976A 976B
977A 977B 978A	1 13/16 1 7/8 2	1 1/8		1 1/4	ī 1/4	2 5/8 2 5/8 2 7/8	10 7/8 10 7/8 11 3/8	SCON	SCOP	SCON	4.80 4.80 5.70	977A 977B 978A
979A 979B 980A	2 3/16 2 1/4 2 3/8	1 3/8		1 1/2	1 1/2	3 3 3 5/16	11 7/8 11 7/8 12 1/2	0	0	0	7.30 7.30 9.70	979A 979B 980A

Temporarily furnished with loose parkerized pin handles. All other sizes assembled.

+ REGISTERED TRADE MARK

Weights, page H.

WILLIAMS' +"SUPERIOR" SOCKET WRENCHES

(Carbon Steel)

STRAIGHT PATTERN

With or Without Pin-Handle

(Continued from previous page)

Hexagon end of shank is designed for use in combination with another wrench or with Pin-Handle.

Wrenches of shorter or longer lengths than stated in table can be furnished to order in quantities.

* Finished Wrenches with Pin-Handles will be supplied, unless otherwise specified.



	the in	SQUA	RE OPE	NINGS	[\$/1	=44	124		LIST	PRICE		2000
	60.004	Amer.	For	NI MININ	Amer.	Division	Ex-	Unha	rdened	Fini	shed	CIE
No.	Nominal Opening	Std. HEAVY Nut (U.S.S.); Size Bolt	Cap Screw; Diam. Screw	For Set Screw; Size	Std. REGULAR Nut; Size Bolt	Diam. of Head	treme Length, Approx.		With Pin- Han- dle	With- out Pin- Han- dle	With Pin- Han- dle	No.
*960H	1/8		*****	1/8		5/16	3 3/4				\$.70	960H*
*961H *961J	3/16 1/4			3/16 1/4		1/2 1/2	4 1/4 4 1/4	O	ON ON	ON	.80 .80	961H* 961J *
*962H *963H	5/16 3/8		1/4	5/16 3/8		5/8 11/16	4 1/2 4 7/8	DURATION"	DURATION"	DURATION"	.88	962H* 963H*
*965H *966H	7/16 1/2	1/4	5/16 3/8	7/16 1/2	1/4	7/8	5 3/4 6 1/8		100		1.16 1.26	965H* 966H*
967H	9/16		7/16	9/16	5/16	1 1/8	6 1/2	"THE	THE	THE	1.42	967H
*968H *968P	5/8 11/16	3/8	1/2 9/16	5/8	3/8	1 1/4 1 1/4	7 7	FOR	FO.	FO.	1.54 1.54	968H* 968P*
*969H *970H	3/4 13/16		5/8	3/4	7/16 1/2	1 3/8 1 1/2	7 3/8 7 7/8			2.75	1.74 1.96	969H* 970H*
971H	7/8	1/2	3/4	7/8	9/16	1 5/8	8 1/4	ž	Ž	ž	2.20	971H
973H 974H	i 1/8		7/8	1 1/8	5/8 3/4	1 7/8	9 1/8 9 1/2	ONTINUED	DISCONTINUED	ONTINUED	3.00 3.40	973H 974H
976H 977X	1 1/4 1 7/16	3/4 7/8	1	1 1/4		2 3/8 2 5/8	10 3/8 10 7/8	DISC	DISC	DISC	4,24 4,80	976H 977X
977P	1 1/2		1 1/4	1 1/2	1	2 5/8	10 7/8		151,1	D 3	4.80	977P

^{*} Temporarily furnished with loose parkerized pin handles. All other sizes assembled.

+ REGISTERED TRADE MARK

Weights, page H.

WILLIAMS' +"SUPERIOR" OFFSET SOCKET WRENCHES (Carbon Steel)



Unhardened are broached and shot-blasted.

Finished are broached, surface smooth, hardened and black enameled, face bright. Whitworth Standard sizes, see page 125.

(Continued on following page)

		HEXA	GON OP	ENINGS		100		Handle	LIST I	PRICE	
No.	Nominal Opening Across Flats	Amer. Std. HEAVY Nut (U.S.S.); Size Bolt	Amer. Std. Cap Screw; Diam. Screw	Amer. Std. LIGHT Nut (S.A.E.); Size Bolt	Amer. Std. REGULAR Nut; Size Bolt	Diam. of Head	Extreme Length, Approx.	Offset in Clear from Face of Wrench	Unhard- ened	Fin- ished	No.
261A 262D	5/16 3/8	1/8	3/16			1/2 5/8	3 3/8 3 7/8	13/16	\$.40 .44	\$.60 .66	261A 262D
263A 263D 264A	13/32 7/16 1/2	3/16	1/4 5/16	1/4 5/16	1/4	11/16 11/16 3/4	4 5/16 4 5/16 5 1/8	1 1/16 1 1/16 1 1/4	.48 .48 .52	.72 .72 .78	263A 263D 264A
265D 265A 266D	9/16 19/32 5/8	5/16	3/8	3/8	5/16	7/8 7/8	5 7/8 5 7/8 6 1/4	1 7/16 1 7/16 1 9/16	.58 .58 .64	.88 .88	265D 265A 266D
267A 267D 268A 268D	11/16 3/4 25/32 13/16	3/8	1/2	1/2	7/16	1 1/8 1 1/8 1 1/4 1 1/4	6 3/4 6 3/4 7 1/2 7 1/2	1 5/8 1 5/8 1 13/16 1 13/16	.72 .72 .80 .80	1.08 1.08 1.20 1.20	267A 267D 268A 268D
269A 270S 270A 270D	7/8 15/16 31/32	9/16	5/8	9/16 5/8	9/16	1 3/8 1 1/2 1 1/2 1 1/2	8 3/8 9 1/8 9 1/8 9 1/8	2 2 3/16 2 3/16 2 3/16	.92 1.04 1.04 1.04	1.38 1.56 1.56 1.56	269A 270S 270A 270E
271A 271D 273A 273B	1 1/16 1 1/8 1 1/4 1 5/16	5/8	7/8	3/4	3/4	1 5/8 1 5/8 1 7/8 1 7/8	10 10 11 5/8 11 5/8	2 3/8 2 3/8 2 3/4 2 3/4	1.20 1.20 1.60 1.60	1.80 1.80 2.40 2.40	271 A 271 D 273 A 273 B
275A 275D 276A 276B	1 7/16 1 1/2 1 5/8 1 11/16	7/8	1 1/8	1 1/8	1 1/8	2 1/8 2 1/8 2 3/8 2 3/8	13 1/4 13 1/4 14 7/8 14 7/8	3 1/8 3 1/8 3 1/2 3 1/2	2.00 2.00 2.30 2.30	3.00 3.00 3.44 3.44	275A 275D 276A 276B
277A 277B 278A	1 13/16 1 7/8 2	1 1/8		1 1/4	1 1/4	2 5/8 2 5/8 2 7/8	16 1/2 16 1/2 18 1/4	3 7/8 3 7/8 4 3/8	2.60 2.60 3.20	3.90 3.90 4.80	277A 277B 278A
279A 279B 280A	2 3/16 2 1/4 2 3/8	1 3/8		1 1/2	1 1/2	3 3 3 5/16	20 20 21 3/4	4 7/8 4 7/8 5 3/8	4.20 4.20 5.60	6.30 6.30 8.40	279A 279B 280A

Weights, page F.

⁺ REGISTERED TRADE MARK

WILLIAMS' +"SUPERIOR" OFFSET SOCKET WRENCHES (Carbon Steel)



(Continued from previous page)

Special broaching to order in reasonable quantities.

These Offset Socket Wrenches, of shorter or longer lengths than stated in table, can be furnished to order in quantities.

		SQUA	RE OPE	NINGS				IIII-	LIST I	PRICE	
No.	Nominal Opening	Amer. Std. HEAVY Nut (U.S.S.); Size Bolt	For Cap Screw; Diam. Screw	For Set Screw; Size	Amer. Std. REGULAR Nut; Size Bolt	- 5	Extreme Length, Approx.	Handle Offset in Clear from Face of Wrench	Unhard- ened	Fin- ished	No.
260H	1/8			1/8		5/16	2 3/4	9/16	\$.36	\$.54	260H
261H 261J	3/16 1/4			3/16 1/4		1/2 1/2	3 3/8 3 3/8	13/16 13/16	.40 .40	.60	261H 261J
262H	5/16			5/16		5/8	3 7/8	1	.44	.66	262H
263H	3/8		1/4	3/8		11/16	4 5/16	1 1/16	.48	.72	263H
265H	7/16		5/16	7/16	1/4	7/8	5 7/8	1 7/16	.58	.88	265H
266H	1/2	1/4	3/8	1/2		1	6 1/4	1 9/16	.64	.96	266H
267H	9/16		7/16	9/16	5/16	1 1/8	6 3/4	1 5/8	.72	1.08	267H
268H 268P	5/8 11/16	3/8	1/2 9/16	5/8	3/8	1 1/4 1 1/4	7 1/2 7 1/2	1 13/16 1 13/16	.80 .80	1.20 1.20	268H 268P
269H	3/4		5/8	3/4	7/16	1 3/8	8 3/8	2	.92	1.38	269H
270H	13/16				1/2	1 1/2	9 1/8	2 3/16	1.04	1.56	270H
271H	7/8	1/2	3/4	7/8	9/16	1 5/8	10	2 3/8	1.20	1.80	271H
273H	1			1	5/8	1 7/8	11 5/8	2 3/4	1.60	2.40	273H
274H	1 1/8		7/8	1 1/8	3/4	2	12 3/8	2 7/8	1.80	2.70	274H
276H	1 1/4	3/4	1	1 1/4		2 3/8	14 7/8	3 1/2	2.30	3.44	276H
277X 277P	1 7/16 1 1/2	7/8	1 1/4	1 1/2	ï	2 5/8 2 5/8	16 1/2 16 1/2	3 7/8 3 7/8	2.60 2.60	3.90 3.90	277X 277P

Weights, page F.

⁺ REGISTERED TRADE MARK



AND DROP-FORGED TOOLS

+ "SUPERIOR" DROP-FORGED WRENCH SETS (Carbon Steel)









No. 2-S

theorface smoothed, sizes stamped on heads, hardened and eads bright.

SET	No	25
- P. 1	13(1).	20

σ_I	2 - 11		SET ?	No. 25				
No.	Nominal Openings	For Amer. Std. HEAVY Nuts (U.S.S.); Size Bolts	For Amer. Std. Hez Head Cap Screws; Diam. Screwa	For Amer. Std. LIGHT Nuts (S.A.E.); Size Bolts	For Amer. Std. REGULAR Nuts; Size Bolts	Extreme Length, Approx.	LIST PRICE Each, Finished	No.
723	3/8 & 7/16		3/16 & 1/4	1/4	1/4	4 1/4	\$.42	723
25	1/2 & 19/32	1/4 & 5/16	5/16	5/16		5 1/2	.50	25
27C	9/16 & 11/16	3/8	3/8	3/8	5/16	6 1/2	.62	270
28S	5/8 & 25/32	7/16	7/16	7/16	3/8	7	.74	285
731A 33C	3/4 &c 7/8 15/16 &c 1	1/2	1/2 & 5/8 3/4	1/2 & 9/16 5/8	7/16 & 9/16 5/8	8 3/4 9 1/2	.90 1.10	731A 33C
No. 25 S		E Complete, I	In Cardboard		33.	N.	\$5.28 4.28	Set 25
				ET, "BIG SI	The same of the sa			
		1	14 4 700	1	***	-	4 10	#3F
725	7/16 & 1/2	1/4	1/4 & 5/16	1/4 & 5/16	1/4	5 6 1/2	\$.50	725
27G 28	9/16 & 11/16	3/8 5/16 & 7/16	3/8	3/8	5/16	7	.74	28
729	19/32 & 25/32 5/8 & 3/4	5/10 or //10	7/16 & 1/2	7/16 & 1/2	3/8 & 7/16	7	.74	729
34	7/8 & 1 1/16	1/2 & 5/8	5/8	9/16 & 3/4	9/16	10 3/4	1.36	34
736	1 & 1 1/4	3/4	3/4	7/8	5/8	12	1.92	736
No. 4 SE	ET LIST PRICE	E Complete, In	Khaki Roll Cardboard B	ox			\$6.88 5.88	Set 4
		LIG	HT SERVIC	E SET No.	2-S	T BILLY	MINI	
77S	7/16 & 1/2	1/4	1/4 & 5/10	1/4 & 5/16	1/4	7 1/4	\$.68	775
79S	9/16 & 5/8		3/8 & 7/16	3/8 & 7/16	5/16 & 3/8	8 1/4	.86	799
81A	3/4 & 7/8	1/2	1/2 & 5/8	1/2 & 9/16	7/16 & 9/16	0 1/4	1.10	81A
83A	15/16 & 1	************	3/4	5/8	5/8	10 3/8	1.40	83A
85C	1 1/16 & 1 1/4	5/8 & 3/4		3/4 & 7/8		12	2.00	850
No. 2-S	SET LIST PRI	CE Complete,	In Khaki Rol In Cardboard		7-1		\$7.04 6.04	Set 2-S
ICH.	TINE (MARKET		SET N	lo. 5-S				
725	7/16 & 1/2	1/4	1/4 & 5/16	1/4 & 5/16	1/4	5	\$.50	725
727	9/16 & 5/8		3/8 & 7/16	3/8 & 7/16	5/16 & 3/8	6	.62	727
731A	3/4 &c 7/8	1/2	1/2 & 5/8	1/2 & 9/16	7/16 & 9/16	8 3/4	.90	731A
33C	15/16 & 1		3/4	5/8	5/8	9 1/2	1.10	330
37	1 1/16 & 1 1/4	5/8 & 3/4		3/4 & 7/8		12	1.92	37
No. 5-S	SET LIST PRI	CE Complete,	In Khaki Rol	1			\$6.04	Set
		. ,	In Cardboard	73			5.04	5-5

+ "SUPERIOR" DROP-FORGED WRENCH SETS (Carbon Steel)

(Continued from previous page)











No. 1

No. 3

"LIGHT SERVICE" SET

No.	Nominal Openings	For Manu- facturers' Std. Nuts; Size Bolta	Amer. Std. HEAVY Nuts (U.S.S.); Size Bolts	Amer. Std. Hex Head Cap Screws; Diam. Screws	Amer Itd. LIGHT Nuts (S.A.E.); Size Bolts		Thick-	Finance	A S
75 77 79 81 83	13/32 & 1/2 1/2 & 5/8 5/8 & 11/16 11/16 & 27/32 27/32 & 15/16	3/16 & 1/4 1/4 & 5/16 5/16 & 3/8 3/8 & 7/16 7/16 & 1/2	3/16 & 1/4 1/4 3/8 3/8	5/16 & 7/16 7/16	5/16 & 7/16 7/16	6 1/4 7 1/4 8 1/4 9 1/4 10 3/8	5/4 5/4 3/8 7/16	7 54 17 7 10 7.40	75 77 79 81 83
No. 1 S	ET LIST PRIC	CE Complete,	In Khaki Ro In Cardboar		11 14	Anne Hij	T-	\$5.38 4.58	Set 1

"LIGHT SERVICE" SET No. 3

75B 77B 79 81B 83B 85B		3/8 1/2 5/8 3/4 7/8 1 1/8	& & & & & & & & & & & & & & & & & & &	7/16 9/16 11/16 13/16		1/4 3/8 1/2 3/4	3/16 & 1/4 5/16 & 3/8 7/16 1/2 & 9/16 5/8 & 3/4 7/8	5/16 & 3/8 7/16 1/2 9/16 7/8	6 1/4 7 1/4 8 1/4 9 1/4 10 3/8	1/4 9/32 5/16 3/8 7/16 1/2	\$.54 .68 .86 1.10 1.40 2.00	75B 77B 79 81B 83B 85B
No. 3 S	SET		LIS	r PRI	CE Complete,	In Khaki Ro					\$7.58	Set

"LIGHT SERVICE" SET No. 6

75A 77 79C 81A 83B	3/8 & 1/ 1/2 & 5/ 5/8 & 3/ 3/4 & 7/ 7/8 & 1	8	1/4	3/16 & 5/16 5/16 & 7/16 7/16 & 1/2 1/2 & 5/8 5/8 & 3/4	5/16 & 7/16 7/16 & 1/2 1/2 & 9/16 9/16	6 1/4 7 1/4 8 1/4 9 1/4 10 3/8	1/4 9/32 5/16 3/8 7/16	\$.54 .68 .86 1.10 1.40	75A 77 79C 81A 83B
No. 6 SE	T LIST P	RICE Complete,	In Khaki Ro	ll Box		TOP I	military.	\$5.38 4.58	Set

"DUPLEX" SET, No. 9

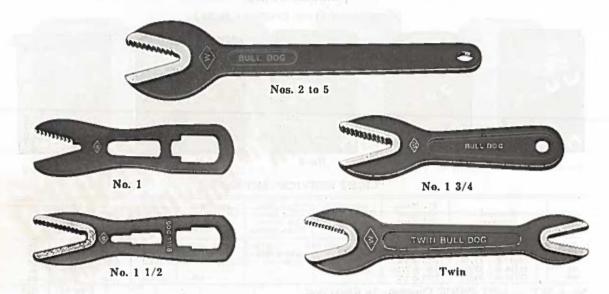
No.	Nominal Openings	Amer. Std. HEAVY Nuts (U.S.S.); Size Bolts	Amer. Std. Hex Head Cap Serews; Diam. Serews	Amer. Std. LIGHT Nuts (S.A.E.); Size Bolts	Amer. Std. REGULAR Nuts; Size Bolts	Extreme Length, Approx.	LIST PRICE Each, Finished	No.
725 25 27C 28S 731A 34 736	7/16 & 1/2 1/2 & 19/32 9/16 & 11/16 5/8 & 25/32 3/4 & 7/8 7/8 & 1 1/16 1 & 1/4	1/4 & 5/16 3/8 7/16 1/2 1/2 & 5/8 3/4	1/4 & 5/16 5/16 3/8 7/16 1/2 & 5/8 5/8 3/4	1/4 & 5/16 5/16 3/8 7/16 1/2 & 9/16 9/16 & 3/4 7/8	1/4 5/16 3/8 7/16 & 9/16 9/16 5/8	5 5 1/2 6 1/2 7 8 3/4 10 3/4	\$.50 .50 .62 .74 .90 1.36 1.92	725 25 27C 28S 731A 34 736
lo. 9 SE	ET LIST PRICE	E Complete, In	Khaki Roll	04	The love chill		\$7.79	Set

EXTRA CAPACITY SET, "BIG TEN," No. 10

721 23 725A 27 729 731B 32 33C 737 38	5/16 & 3/8 13/32 & 1/2 7/16 & 9/16 19/32 & 11/16 5/8 & 3/4 13/16 & 7/8 25/32 & 31/32 15/16 & 1/8	1/8 3/16 & 1/4 5/16 & 3/8 1/2 7/16 & 9/16	1/8 & 3/16 5/16 1/4 & 3/8 7/16 & 1/2 9/16 & 5/8 7/8	1/4 & 3/8 7/16 & 1/2 9/16 5/8 7/8	1/4 & 5/16 3/8 & 7/16 1/2 & 9/16 5/8	4 5/8 5 1/2 7 8 3/4 9 1/2 9 1/2 12	\$.34 .42 .50 .62 .74 .90 1.10 1.10	721 23 725A 27 729 731B 32 33C 737 38
io. 10 Si	1 1/16 & 1 7/16 ET LIST PRIC	E Complete, I	n Khaki Roll n Cardboard	3/4 & 1	1	13 1/2	\$12.19 10.44	Set

⁺ REGISTERED TRADE MARK

WILLIAMS' "BULL DOG" WRENCHES



"ALWAYS READY" WRENCHES



Designed for all-around service, these wrenches will grip round, square, hexagon or any shape that will fit between their tough jaws.

Drop-forged from a specially fine grade of steel and carefully tempered in oil, these wrenches are practically indestructible.

The handles of "Bull Dog" Nos. 2 and 2 1/2 are concave. "Bull Dog" No. 1 packed 12 in a paper box—all others 6 to a box.

"BULL DOG" WRENCHES

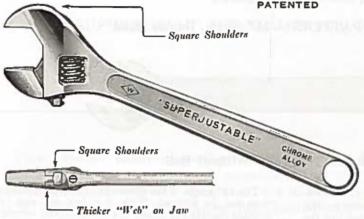
	Сар	acity	Extreme	Weight per Doz.	LIST PRICE,	No.
No.	Pipe	Rounds	Length	Lbs.	Each	No.
1 1 1/2 1 3/4	1/8 to 3/8 1/8 to 1/2 1/8 to 3/4	1/4 to 3/4 3/8 to 7/8 3/8 to 1	5 1/2 5 1/2 7	3. 3.5 7.5	\$.45 .75 1.10	1 1 1/2 1 3/4
2 2 1/2 3 3 1/2	1/4 to 3/4 3/8 to 1 1/2 to 1 1/4 1/2 to 1 1/2	1/2 to 1 5/8 to 1 1/4 3/4 to 1 1/2 3/4 to 1 3/4	9 12 1/2 16 18 3/4	9. 16.5 38. 48.	1.20 1.85 2.80 3.70	2 2 1/2 3 3 1/2
4 4 1/2 5	3/4 to 2 1 to 2 1/2 2 to 3	1 to 2 1/4 1 1/4 to 2 3/4 2 1/4 to 3 1/2	22 24 27	97. 128. 158.	5.60 8.50 11.00	4 4 1/2 5
Twin	1/8 to 3/4	5/16 to 1	10	13.5	1.90	Twit
		"ALWAYS REA	DY" WREN	CHES		
1 2 3	1/8 to 3/8 1/8 to 1 1/2 to 1 1/2	1/4 to 3/4 1/4 to 1 1/4 3/4 to 2	5 7 11 1/2	4.4 9. 32.	\$1.25 1.55 3.50	1 2



AND DROP-FORGED TOOLS

WILLIAMS'+"SUPERJUSTABLE" WRENCHES

Chrome-Alloy PATENTED



REPLACEMENT PARTS ASSORTMENT 88 of the Packed in com partment cardboard box the following parts:— Knurls Pins Springs containing 88 c Size Jaws 4" 4 6" 6 8" 6 10" 4 12" 2 LIST PRICE
"SUPERJUSTABLE" Assortment
ADJUSTABLE Assortment

Williams' "Superjustable" Wrenches with thin, tapered jaws, are drop-forged from the finest grade of Chrome-Alloy Steel obtainable for the purpose. "Superjustables" are thinner and lighter, yet stronger and tougher than conventional carbon steel adjustable wrenches of similar capacity. They are second to no other alloy steel adjustable wrenches in appearance, strength and durability,

Square shoulders on the shank portion of the sliding jaw provide maximum and positive bearing against working stress. It eliminates entirely the wedging and spreading action, inevitable in wrenches having a cylindrical bearing at this point. The shoulders also permit a thicker "web" on the jaw, for added strength, without increasing the thickness of the wrench head.

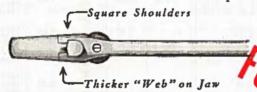
All parts are carefully machined to extremely close limits, assuring the accurate fit essential in wrenches of this class. Heat-treatment in recording electric furnaces insures uniformity of product and tough, dependable strength.

Finished in chrome-plate over nickel, with highly polished head; the handle is in "satin" finish. Packed, individually, in cardboard box.

Size,	List Price		Thickne	e Head		t Wgt.,	Extra	Parts-I	ist Price	e, Each	Size,
Inch	Fin- Semi- ished finished	Capacity	Tip of Jawa	Extreme	Extreme Lbs. Oz.		Jaw	Knurl	Pin	Spring	Inch
			UPERJUS	TABLE	' - A	lloy S	teel				
6	\$1.30	1/2 3/4	9/64 7/32	5/16 3/8		1-1/2 3-3/4	\$.44 ,44	\$.18 .18	\$.06	\$.06 .06	4 6
8	2.05	15/16 1- 1/8	17 /64 23 /64	1/2 19/32		7-1/2 12-1/2	.56 .74	.21 ,24	.06	.06	8 10
12 15 † 18	2.95 4.45 7.35	1- 5/16 1- 3/4 2- 1/16	15/32 19/32 23/32	23/32 31/32 1- 3/16	1 3 6	6-1 /2 3-1 /2 0	1.06 1.60 2.20	.38 .62 1.00	.15 .15	.06 .06	12 15 † 18

WILLIAMS' ADJUSTABLE WRENCHES

Improved Oxbon Steel



greater strength is due to improved design materials-no increase in size.

from a specially strong, tough steel heat-treated in electric furnaces noutable strength.

nished in satural polyhod steel; Semi-finished teggrit-blasted, heads, bright.

These are positively the strongest Carbon Steel Wrenches of their type now made. Their consid-

individually

Size.	List	Price		Thicknes	s Head	Net	West.	Till 1970	Barts-L	ist Direct	Hack	
Inch	Fin- ished	Semi- finished	Capacity	Tip of Jaws	Extreme	Lbs.	Oz.		Night P	Pin	S na	Size, Inch
				ADJUSTA	BLE-C	rbor	Stee	e I	MI	In.	-	1777
4	\$1.05 1.05	\$.92 .92	1/2 3/4	9/64 19/64	5/16 29/64		5	\$.35 .35	3 11		5.06	4 6
8 10	1.30 1.60	1.15 1.40	15/16 1- 1/8	3/8 33/64	17/32 23/32		10 17	.44	.18 .21	.06	.06	8
12 † 15 † 18	2.45 3.30 4.80	2.15 2.05 3.80	1- 5/16 1-11/16 2- 1/16	39/64 27/32 15/16	27/32 1- 1/8 1- 5/16	1 4 6	15 3 14	.88 1.24 1.68	.35 .50 .80	.15 .15 .15	.06 .06	† 15 † 18

^{† &}quot;Diamond" Brand.

REGISTERED TRADE MARK

SUPERIOR DROP-FORGINGS WILLIAMS AND DROP-FORGED TOOLS

WILLIAMS' +"SUPERRENCHES"

(Chrome-Molybdenum)

ENGINEERS' PATTERN - 15° Angle, Double Head



Strength and Toughness Without Bulk

These "Superrenches" are particularly serviceable in cramped quarters where clearance is limited. The jaws are long, thin and pointed but the strength is the greatest ever put in a thin wrench. Chrome-Molybdenum steel makes "Superrenches" absolutely dependable — no matter how hard the work. The 15° angle of the opening is the most efficient that can be devised. With it a hex nut can be rotated completely where the swing of the wrench is limited to only 30°.

Unfinished—Baked light gray enamel.

Finished—Chrome-plated; heads buffed bright.

Whitworth and Metric sizes, see page 127.

ham.		For Amer. Std.	For Amer, Std.	For Amer. Std.	For Amer. Std.	Ex-	Thick-	LIST	PRICE	
No.	Nominal Openings	HEAVY Nuts (U.S.S.); Size Belts	Hex Head Cap Scrows; Diam. Screws	LIGHT Nuts (S.A.E.); Size Bolts	REGULAR Nuts; Size Bolts	trenic Length	ness Hends	Unfin- ished	Fin- ished	No.
1021S 1721 1021	1/4 & 5/16 5/16 & 3/8 5/16 & 13/32	1/8 1/8 & 3/16	1/8 & 3/16 1/8			4 1/2	3/16	r-filling III = 10	\$.58	1021S 1721 1021
1723	3/8 & 7/16	*********	3/16 & 1/4	1/4	1/4	47/8	13/64	-	.58	1723
1023 1723A	13/32 & 1/2 3/8 & 1/2	3/16 & 1/4	3/16 & 5/16	5/16 5/16		5 1/4	7/32	0	.69	1023 1723A
1725	7/16 & 1/2	1/4	1/4 & 5/16	1/4 & 5/16	1/4	5 5 /8	15/64	E	.82	1725
1725B 1025	1/2 & 9/16 1/2 & 19/32	1/4 1/4 & 5/16	5/16 & 3/8 5/16	5/16 & 3/8 5/16	5/16	} 61/8	1/4	R A	.82	1725B 1025
1727	9/16 & 5/8		3/8 & 7/16	3/8 & 7/16	5/10 & 3/8	6.5/8	17/64	2	1.00	1727
1027 1027C	19/32 & 11/16 9/16 & 11/16	5/10 de 3/8 3/8	3/8	3/8	5/16	} 7 1/4	9/32	n C	1.00	1027 1027C
1028S 1729	5/8 & 25/32 5/8 & 3/4	7/16	7/16 7/16 & 1/2	7/16 7/16 & 1/2	3/8 3/8 & 7/16	} 77/8	19/64	E	1.24	1028S 1729
1029	11/16 & 25/32	3/8 & 7/16				8 1 /2	5/16	:	1.24	1029
1731 1731 A 1031 1731 B	3/4 & 13/16 3/4 & 7/8 25/32 & 7/8 13/16 & 7/8	7/16 & 1/2 1/2 1/2	1/2 & 9/16 1/2 & 5/8 5/8 9/16 & 5/8	1/2 & 9/16 9/16 9/16	7/16 & 1/2 7/16 & 9/16 9/16 1/2 & 9/16	9 1 /4	11/32	0 8	1.65	1731 1731A 1031 1731B
1033A 1033	7/8 & 15/16 7/8 & 31/32	1/2 1/2 & 9/16	5/8 5/8	9/16 & 5/8 9/16	9/16 9/16	} 10	3/8	0	1,65	1033A 1033
1733 1033G	7/8 & 1 15/16 & 1	1/2	5/8 & 3/4 3/4	9/16 & 11/16 5/8 & 11/16	0/16 & 5/8 5/8	107/8	13/32	D	2.25	1733 1033C
1034A 1034 1035	15/16 & 1 1/16 7/8 & 1 1/16 31/32 & 1 1/16	1/2 & 5/8 9/10 & 5/8	5/8	5/8 & 3/4 9/16 & 3/4 3/4	0/16	11 3/4	7/16	Z	2,25	1034A 1034 1035
1735 1037 1737 1037A	1 & 1 1/8 1 1/16 & 1 1/4 1 1/8 & 1 1/4 1 1/8 & 1 5/16	5/8 & 3/4 3/4	3/4 & 7/8 7/8 7/8 & 1	11/16 3/4 & 7/8 7/8	5/8 & 3,4 3/4 3/4 & 7/8	12 3/4	1/2	0 0	3.15	1735 1037 1737 1037A
1039 1039A 1040	1 1/4 & 1 7/16 1 5/16 & 1 1/2 1 1/4 & 1 5/8	3/4 & 7/8 3/4 & 1	1 & 1 1/8	7/8 & 1 7/8 & 11/8	7/8 & 1	} 14	9/16	DIS	4.90	1039 1039A 1040
1041	17/16 & 15/8	7/8 & 1		1 & 1 1/8		15 3/4	3/4	11	8.80	1041

^{*}Long "Superrenches" for heavy service, see page 42.

Weights, page I.

3-4

(Carbon Steel Wrenches, pages 4 and 5)

⁺ REGISTERED TRADE MARK



AND DROP-FORGED TOOLS

WILLIAMS' + "SUPERRENCH" SETS (Chrome-Molybdenum)

"SUPERRENCH" SET No. 1025 FOR GENERAL SERVICE

LIST PRICE, Chrome-Finished:

In Leatherette Roll \$8.65 In Cardboard Box \$7.55

This efficient handy assortment consists of six "Superrenches" with 12 different openings, 3/8 to 1". Service all S.A.E. nuts and cap screws, 1/4 to 11/16", U. S. Std. nuts 1/4 to 1/2", Amer. Std. Regular nuts 1/4 to 5/8", and hex cap screws 3/16 to 3/4".





No.	Nominal Openings	Amer. Std. HEAVY Nut (U.S.S.); Sizo Bolt	Amer. Std. Hex Head Cap Screw; Diam. Screw	Amer. Std. LIGHT Nut (S.A.E.); Size Bolt	Amer. Std. REGULAR Nut; Size Bolt	LIST Each, Chrome- Finished	No.
1723 1025 1027C 1028S 1731A 1033C	3/8 & 7/16 1/2 & 19/32 9/16 & 11/16 5/8 & 25/32 3/4 & 7/8 15/16 & 1	1/4 & 5/16 3/8 7/16 1/2	3/16 & 1/4 5/16 3/8 7/16 1/2 & 5/8 3/4	5/16 3/8 7/16 1/2 & 9/16 5/8 & 11/16	1/4 5/16 3/8 7/16 & 9/16 5/8	\$.58 .82 1.00 1.24 1.65 2.25	1723 1025 1027C 1028S 1731A 1033C

"SUPERRENCH" SET No. 1712—EXTRA CAPACITY

LIST PRICE, Chrome-Finished:

In Leatherette Roll \$30.20 In Cardboard Box \$27.60

An excellent Set for Marine Engineers Twelve "Superrenches" with 24 different openings, 5/16 to 1-5/8", cover ALL sizes of nuts S.A.E. Std. 1/4 to 1-1/8", U. S. Std. 1/8 to 1", Amer. Std. 1/4 to 1" and cap screws 1/8 to 1-1/8".



No.	Nominal Openings	Amer. Std. HEAVY Nut (U.S.S.); Size Bolt	Amer. Std. Hex Head Cap Screw; Diam Screw	Amer. Std. LIGHT Nut (S.A.E.); Size Bolt	Amer. Amer. REGUL D Nut; Size Bolt	IST Figh. Chrome- Finished	No.
1021 1723 1025 1727 1029 1731 1033 1033C 1037A 1038 1739B 1040	5/16 & 13/32 3/8 & 7/16 1/2 & 19/32 9/16 & 5/8 11/16 & 25/32 3/4 & 13/16 7/8 & 13/16 15/16 & 1 1 1/8 & 1 5/16 1 1/16 & 1 7/16 1 3/8 & 1 1/2 1 1/4 & 1 5/8	1/8 & 3/16 1/4 & 5/16 3/8 & 7/16 1/2 & 0/16 5/8 & 7/8	1/8 3/16 & 1/4 5/16 3/8 & 7/16 1/2 & 9/16 5/8 7/8 & 1	5/16 1/4 5/16 7/16 1/2 9/16 5/8 3/4 & 1 1/8	1/4 5/16 & 3/8 7/16 & 1/2 9/16 5/8 3/4 & 7/8	\$.58 .82 1.00 1.24 1.65 1.65 2.25 3.15 4.90 4.90	1021 1723 1025 1727 1029 1731 1033 1033(1037/ 1038 1739E

⁺ REGISTERED TRADE MARK

WILLIAMS' +"SUPERRENCHES"

(Chrome-Molybdenum)

ENGINEERS' PATTERN

Angle-Single Head

E "SUPERRENCH"

at angles

Unfinished-Baked light gray enamel. Finished-Chrome-plated; heads buffed bright.

	1 1	For Amer Eta	For	or Amer. Std.	For Amer. Std.	Ex-	Thick-	LIST	PRICE	
	2 mili	HEAV Nu B.S. :	Amer. Std. Hex Ha Cap lerey; Dam lerew	(S.A.E.); Size Bolt	REGULAR Nut; Size Bolt	treme Length	ness Heads	Unfin- ished	Fin- iahed	No
1000	₫/16	1/8	1/8			3 1/2	7/32	\$.33	\$.47	100
1000A	13/32	3	3/16			4	1/4	,33	.47 {	170
1701	7/16	1/4	1/4 5/16	1/4 5/16	1/4	4 5/8	9/32	.39	.56 {	100
1702 1002	1 1 2	5/16	3/8	3/8	5/16	5 1/2	5/16	.50	.70 {	170
1703 1003	5/8	3/8	7/16	7/16	3/8	6 3/8	11/32	.62	.85 {	170 100
1704 1004	3/4 25/32	7/16	1/2	1/2	7/16	7 1/4	3/8	.78	1.05	170
1705 1005	13/16 7/8	1/2	9/16 5/8	9/16	1/2 9/16	8 1/8	7/16	.96	1.25	170
1006A 1006 1706	15/16 31/32	9/16	3/4	5/8 11/16	5/8	0 1/4	1/2	1.16	1,50	100 100 170
1007 1707	1 1/16 1 1/8	5/8	7/8	3/4	3/4	10 1/2	9/16	1.47	1.88 {	170
1008 1008A	1 1/4 1 5/16	3/4	1	7/8	7/8	} 12	21/32	2.00	2,50 {	100
1009 1709	1 7/16 1 1/2	7/8	1 1/8	1	1	3 1/2	23/32	3.05	3.80 {	100
1010 1010A	1 5/8 1 11/16	1	1 1/4	1 1/8	1 1/8	} 15	25/32	4.30	5.30 {	101
1011 1011A	1 13/16 1 7/8	1 1/8		1 1/4	1 1/4	} 16 1/2	7/8	5.65	6.90 {	101
1012 1012A	2 1/16	1 1/4		1 3/8	1 3/8	} 18 1/4	15/10	7.90	9.40 {	101
1013 1013A	2 3/16 2 1/4	1 3/8		1 1/2	1 1/2	} 20	1	10.35	12.15 {	101
1014 1014A	2 3/8 2 7/16	1 1/2			1 5/8	} 22	1 1/16	13.00	15.30 {	101

GENERAL SERVICE PATTERN



Due to the use of Chrome-Molybdenum steel, these "Superrenches" provide increased strength and toughness over the carbon steel wrench of corresponding size. Long, light and efficient. Heattreated, chrome-finished, heads bright.

Whitworth Standard sizes, see page 127.

No.	Amer Std, HEAVY Nur H.S.A.	Am Ca H Ca Sa w Da Da Forta	Sta Vo. (b. E.); Sire Bolt	mer.Std. LEGLR. Nut; Sire ilol	Nomes Open- ings	LIST PRIGH Each, Chiral e- missed
51 01 14	5	718 de 910	1/8	И		\$.93
0 No. 2 0 No. 2 0 TTB 9 TT	Ж	Maryin Maryin Maryin Mara Maryin Mara Maryin	1 & 510 14 & 14 14 & 14 10 & 7 10 & 710	14 6 3/4 14 6 3/4 14 6 3/4	716 & 34 316 & 916 316 & 31 34 & 316 34 & 34	1.18
679B 679S 679A 679E 679 679C	510 511	14 de 14 14 de 14	Mad 16 No de 16	% & 16	916 & 1912 916 & 54 916 & 1916 916 & 34 54 & 1916	1,45

Ño.	Amer.Std. HEAVY Nut (U.S.S.); Size Bolt	Amer.Std. Hex Cap Screw; Diam. Screw	Amer. Std. LIGHT Nut (S.A.E.); Size Bolt	Amer.Std REGLR. Nut; Size Bolt	Nominal Open- ings	LIST PRICE Each, Chrome- Finished
1081H 1081 1081B 1081A	34 34	16 & 96 16 & 96 12 & 36	718 14 124 71s	36 & 34 310 & 34 310 & 310	3/6 & 13/6 13/6 & 27/2 3/6 13/6 3/6 1/6 13/6 & 3/6	\$1.75
1083K 1083J 1083 1083B 1083A	1/2	% & % 96 & %	910 & 1310 910 & 1310 910 & 1310	16 & 16	1910 & 1 2312 & 1510 36 & 1 1510 & 1	2,30
1085H 1085 1085J 1085C 1085B 1085K	₩ & ₩	% & 12 % & 13 % & 14	% % % 1% % % 1% % %	% & % % & %	1 41 % 1 41 % 1 41 % 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	3.30

Weights, page I.

REGISTERED TRADE MARK

(Carbon Steel Wrenches, pages 2, 3 and 13)

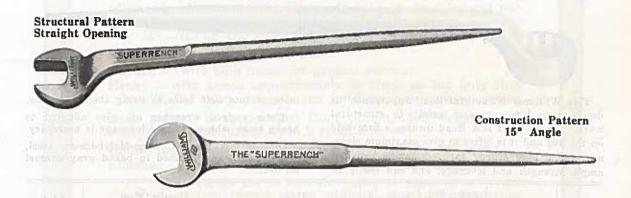


AND DROP-FORGED TOOLS

WILLIAMS' +"SUPERRENCHES"

(Chrome-Molybdenum)

CONSTRUCTION and STRUCTURAL PATTERNS



These wrenches have been made especially to meet the needs of structural workers. The slim design provides ample strength and leverage without unnecessary weight and bulk.

The long, narrow jaws give substantially full bearing on square nuts. The round handle has tapered end for easy insertion into bolt holes when bringing same into line.

In the Structural Pattern, the abrupt offset and angle of handle provide for clearance of obstructions and safety to the operator's hands. The wrench is particularly well balanced. When thrust into scabbard or belt-loop, the "step-up" of the round above the flat part of handle acts as a stop, yet is readily released.

In Structural Wrenches, the openings for U. S. Std. sizes are milled oversize for rough bolts and nuts. This pattern, therefore, has slightly larger openings than corresponding Construction Wrenches.

Drop-forged from Chrome-Molybdenum steel, heat-treated and finished in baked gray enamel all over.

Whitworth Std. sizes, see page 127.

-	CONST	RUC	TION	PAT	TERN	1		1	STR	UCTU	RAL P	ATTI	RN		127
No.	Nominal	For U. S. Std.	S.A.E. Std. Nut	Amer. Std. Reg.	Extreme	List Price,	No.	Nominal	For U. S. Std.	Amer. Std. Reg.	Extreme		Handl	e Offset	List
anout C	Opening	Nut; Sise Bolt	and Cap Screw	Nut; Size Bolt	Length Approx.	Each	140.	Opening	Nut Sise Bolt	Nut Size Bolt	Length, Approx.	Head	At Head	At End	Price, Each
1203A	5/8		7/16	3/8	12	\$1.43	1903A	5/8		3/8	12	7/16	3/4	1-11/16	\$ 1.68
*1203	11/16	3/8			12	1.43	1903	†11/16			12	7/16	3/4	1-11/16	1.68
1205A	13/16	- Un	Home	1/2	14 1/2	1.86	1905A	13/16		1/2	14-1/2	17/32	7 /8	1-7/8	2.25
1205	7/8	1/2	9/16	0/16	14 1/2	1.86	*1905	† 7/8	1/2	9/16	14-1/2	17/32	7/8	1-7/8	2.25
	1111	1/2	FALLSTON .			-	1906	1		5/8	14-1/2	17/32	7/8	1-7/8	2.25
1206B	21		11/16	5/8	14 1/2	1.86	*1907	†1- 1/16	5/8		17	5/8	1	2-3/8	3.15
*1207	1 1/16	5/8	3/4		17	2.60	1907A	1- 1/8	,	3/4	17	5/8	1	2-3/8	3.15
1207A	1 1/8			3/4	17	2,60	*1908	†1- 1/4	3/4		19	11/16	1-1/8	2-3/4	4.25
*1208	1 1/4	3/4	7/8		19	3.50	1908A	1- 5/16		7/8	19	11/16	1-1/8	2-3/4	4.25
1208A	1 5/16			7/8	19	3.50	+1909	/11- 7/16	7/8		21	3/4	1-1/4	3-1/16	5.85
*1209	1 7/16	7/8	1		21	4.80	1707	1- 1/2		1	21	3/4	1-1/4	3-1/16	5.85
1209A	1 1/2			1	21	4.80	*1910	{†1- 5/8 1-11/16	1	1-1/8	23 23	13/16	1-7/16	3-3/8	8.10
1210	1 5/8	1	1 1/8		23	6.80	81	100000000000000000000000000000000000000	-1	1-1/6	1403 (80)	De Committee	1-7/16	3-3/8	8.10
1211	1 13/16	1 1/8	1 1/4		25	10.00	1911	{† 1-13/16 1- 7/8	1-1/8	1-1/4	25 25	7 /8 7 /8	1-5/8 1-5/8	3-11/16	12.25 12.25
1212	2	1 1/4	1 3/8		25	10.00	1912	†2	1-1/4		25	7/8	1-5/8	3-11/16	12.25

†Based on U. S. S. Nut Formula. Actual openings are 1/32 to 1/16" larger for proper clearance on rough nuts and bolts. *Carried in stock with short tangs for oil construction and derrick service. Details on request.

+ REGISTERED TRADE MARK

(Carbon Steel Wrenches, pages 18 and 19)

Weights, pages I and J.



AND DROP-FORGED TOOLS

WILLIAMS' +"SUPERRENCHES"

(Chrome-Molybdenum)

STRUCTURAL BOX PATTERN

With 12-Point Openings



THE "SUPERRENCH"

This Williams' Structural Box "Superrench" is designed to bring greater safety to structural work. The 12-point Box Head insures a firm hold on the nut and it is offset to give maximum clearance. The long sturdy tapered handle provides ample strength and leverage, and can easily be inserted into bolt holes to bring them into line.

These rugged wrenches are also adapted to heavy work where unusual leverage is necessary.

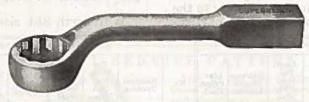
Drop-forged from Chrome-Molybdenum steel, heat-treated, and finished in baked gray enamel all over.

	Nominal	Amer. Std. HEAVY Nut	Extreme	H	ead	Handle	List	
No.	Openings	(U.S.S.); Size Bolt	Length, Approx.	Thickness	Outside Diameter	At Head	At End	Price, Each
8909 8910 8911 8912 8913 8914	1- 7/16 1- 5/8 1-13/16 2 2- 3/16 2- 3/8	7/8 1 1-1/8 1-1/4 1-3/8 1-1/2	21 22 23 24-1/2 26 28	1 1-1/16 1-1/8 1-1/4 1-3/8 1-1/2	2- 3/8 2- 5/8 2-29/32 3- 5/32 3-15/32 3-23/32	1- 1/2 1- 5/8 1-11/16 1-13/16 2 2- 1/8	2- 3/4 2- 7/8 3 3- 5/32 3- 1/2 3-11/16	\$4.40 5.15 5.50 5.85 7.65 8.65

NOTE: These Wrenches can be supplied with heads bent up to 90° right or left of handle at extra charge.

STRIKING FACE BOX-OFFSET PATTERN

With 12-Point Openings



The Striking Face Box "Superrench" is particularly well adapted for heavy work in close quarters where large nuts must be set up tight or frozen nuts loosened.

Offset head gives ample nut clearance. Dropforged from Chrome-Molybdenum steel, properly heat-treated to withstand the necessary shocks. Finished in baked gray enamel all over.

	Nominal	Amer. Std. HEAVY Nut	t LIGHT Nut Extreme		Н	ead	List	
No.	Openings	(U.S.S.); Size Bolt	(S.A.E.); Size Bolt	Length Approx.	Thickness	Outside Diameter	Price, Each	
8807	1- 1/16	5/8 3/4 7/8	3/4 7/8	10-1/2	13/16	1-27/32	\$4.75	
8808	1- 1/4	3/4	7/8	11	7/8	2- 3/32	5.00	
8809	1- 7/16	7/8	1	11-1/2	1	2-3/8	6.10	
8810	1- 5/8	1	1-1/8	12	1-1/16	2- 5/8	6.85	
8811	1-13/16	1-1/8	1-1/4	12-1/2	1-1/8	2-29/32	7.15	
8812	2	1-1/4	1-3/8	13	1-1/4	3- 5/32	7.50	
8813	2- 3/16	1-3/8	1-1/2	13-1/2	1-3/8	3-15/32	9.35	
8814	2- 3/8			14	1-1/2	3-23/32	10.35	
8815	2- 9/16	1-1/2 1-5/8		14-1/2	1-5/8	3-29/32	11.50	
8816	2- 3/4	1-3/4		15	1-3/4	4-5/32	12.75	

Weights, page J.

* REGISTERED TRADE MARK



AND DROP-FORGED TOOLS



THE

"SUPERRENCH"

WILLIAMS'+"SUPERRENCHES"

(Chrome-Molybdenum)

12-POINT BOX PATTERNS FOR CLOSE QUARTERS 12-Point Opening-71/2 Angle

These "Superrenches," with thin head walls, are particularly efficient in close quarters. They grip nuts on six sides and prevent slipping. Will rotate hex nuts where the wrench can be swung only 15°-HALF the space required by conventional wrenches.

Made in 2 patterns, as listed below:-

Regular — with thin heads for general service.

Heavy - with heads approximately as thick as the nuts they handle, for extra strength and full bearing in severe service.

Each pattern is drop-forged from Chrome-Molybdenum steel, heat-treated and furnished in 2 conditions:-

Unfinished - Baked, gray enamel all over; heads not bright. Finished — Chrome-plated; faces of heads buffed bright.

Handle can be bent above head at angles of 45° to 90° from opening, at an additional charge; see illustration.

† At additional charge Heavy Pattern wrenches are also furnished with "striking-face" on end of handle, as illustrated; lengths listed below:-



Regular

H1808 H1809 H1810 H1811 H1812 H1818 H1814 H1815 H1816 H1817A H1808A H1809A H1810A H1811A H1818A H1816A H1817 Length 11 18 8 9 10 12 14 15 17

Heavy

	Nominal	Amer. Std.	For Amer. Std.	For Amer. Std.	For Amer. Std.	Extreme	He	ad	LIST	PRICE
No.	Opening Across Flats	HEAVY Nut (U.S.S.); Size Bolt	Hex Head Cap Screw; Diam. Screw	(S. A. E.); Size Bolt	REGULAR Nut; Size Bolt	Length, Approx.	Thickness	Outside Diameter	Un- finished	Finished
		RE	GULAR I	ATTERN	-12-POI	NT OPE	NING			
1800 A 1801 1802 A 1802 1803 A 1803	7/16 1/2 9/16 19/32 5/8 11/16	1/4 5/16 3/8	1/4 5/16 3/8 7/16	1/4 5/16 3/8 7/16	1/4 5/16 3/8	3 1/2 4 4 7/8 4 7/8 5 7/8 5 7/8	7/32 17/64 5/16 5/16 23/64 23/64	45/64 27/32 31/32 63/64 1 1/16 1 9/64	Levi Le	\$.61 .73 .86 .86 1.90
1804A 1804 1805A 1805 1806A 1806	3/4 25/32 13/16 7/8 15/16 31/32	7/16 1/2 9/16	1/2 9/16 5/8 3/4	9/16 5/8 11/16	7/16 1/2 9/16	6 7/8 6 7/8 7 3/4 7 3/4 8 3/4 8 3/4 8 3/4	11/32 11/32 25/64 25/64 7/16 7/16 7/16	1 1/4 1 3/8 1 3/8 1 1/2 1 9/16 1 11/16 1 11/16	URATION'	1.15 1.15 1.40 1.40 1.70 1.70
1807 1807A 1808 1808A 1809 1869A	1 1/16 1 1/8 1 1/4 1 5/16 1 7/16 1 1/2	5/8 3/4 7/8	7/8	3/4 7/8	3/4 7/8	9 7/8 9 7/8 11 1/2 11 1/2 13 3/8 13 3/8	9/16 9/16 9/16 9/16 21/32 21/32	1 25/32 1 25/32 2 1/16 2 1/16 2 3/8 2 3/8	THE DI	2.05 2.05 2.60 2.60 3.50 3.50
1810 1810A 1811 1811A 1812	1 5/8 1 11/16 1 13/16 1 7/8	1 1/8 1 1/4	1 1/4	1 1/8 1 1/4 1 3/8	1 1/8 1 1/4	15 1/4 15 1/4 17 17 19	3/4 3/4 13/16 13/16 15/16	2 5/8 2 5/8 2 7/8 2 7/8 2 7/8 3 1/4	FOR	4.70 4.70 6.20 6.20 8.05
100000			EAVY PA		12-POIN		ING		0	ANDER
H1808 H1808A H1809 H1809A H1810 H1810A	1 1/4 1 5/16 1 7/16 1 1/2 1 5/8 1 11/16	3/4 7/8	1 1/8	7/8 1 1 1/8	7/8	11 1/2 11 1/2 13 3/8 13 3/8 15 1/4 15 1/4	13/16 13/16 15/16 15/16 1 1/8 1 1/8	2 1/16 2 1/16 2 3/8 2 3/8 2 5/8 2 5/8	NTINUE	3.45 3.45 4.65 4.65 6.25 6.25
†H1811 †H1811A †H1812 †H1813 †H1813A †H1814	1 13/16 1 7/8 2 2 3/16 2 1/4 2 3/8	1 1/8 1 1/4 1 3/8 1 1/2		1 1/4 1 3/8 1 1/2	1 1/4	17 17 19 21 21 23	1 1/4 1 1/4 1 3/8 1 1/2 1 1/2 1 5/8	2 15/16 2 16/16 3 1 1/4 3 1/2 3 1/2 3 3/4	DISCO	8.25 8.25 10.70 13.55 13.55 16.90
†H1815 †H1815A †H1816 †H1817A †H1817	2 9/16 2 5/8 2 3/4 3 1/8	1 5/8 1 3/4			1 3/4	25 25 27 30 30	1 3/4 1 3/4 1 7/8 2	4 1/8 4 1/8 4 9/16 4 13/16 4 13/16		28.05 28.05 40.20 55.00 55.00

Weights, pages I and J. * REGISTERED TRADE MARK

(Carbon Steel Wrenches, pages 8-A and 9)



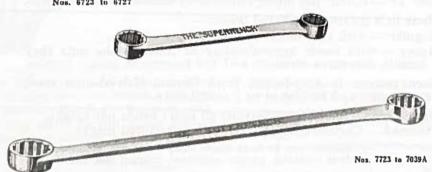
AND DROP-FORGED TOOLS

WILLIAMS' 12-POINT-BOX +"SUPERRENCHES"

(Chrome-Molybdenum)

ANGLE OFFSET PATTERNS

Nos. 6723 to 6727



These 12-Point Box "Superrenches" are particularly well adapted to work in close quarters. Thin head walls permit use where clearance is extremely limited. The openings grip hex nuts on six sides, preventing all slipping and rounding of the nut's corners. The Long Pattern provides unusual reach and leverage.

Each head has a 12-point opening; consequently, hex nuts can be completely rotated where the swing of the wrench is limited to 30°-less than 1/10 of a full turn.

GENUINE "SUPERRENCHES," forged from Chrome-Molybdenum steel, heattreated and furnished in 2 conditions:

Unfinished-Baked light gray enamel. Finished—Chrome-plated over nickel.

Supplied in Whitworth Standard sizes also; details on request.

No.	Nominal Openings	For Amer. Std. HEAVY Nuts (U.S.S.); Size Bolts	For Amer. Std. Hex Head Cap Screws; Diam, Screws	For Amer. Std. LIGHT Nuts (S. A. E.); Size Bolts	For Amer. Std. REGULAR Nuts; Size Bolts	Extreme Length, Approx.	Un-	PRICE Finished	No.
	L	1	ERN-Differ			Head	1 :		
7723 7725 7725B 7025	3/8 & 7/16 7/16 & 1/2 1/2 & 9/16 1/2 & 19/32	1/4 1/4 & 5/16	3/16 & 1/4 1/4 & 5/16 5/16 & 3/8 5/16	1/4 & 5/16 5/16 & 3/8 5/16	1/4 1/4 5/16	7-3/8 7-3/4 8-1/4 8-1/4	DURATION	\$.95 .95 1.00	7723 7725 77251 7025
7727 7727A 7729 7729A	9/16 & 5/8 5/8 & 11/16 5/8 & 3/4 3/4 & 25/32	3/8	3/8 & 7/16 7/16 7/16 & 1/2 1/2	3/8 & 7/16 7/16 7/16 & 1/2 1/2	5/16 & 3/8 3/8 3/8 & 7/16 7/16	9-1 /4 10-1 /2 10-1 /2 12		1.05 1.20 1.20 1.40	7727 7727/ 7729 7729/
7731A 7731B 7033 7033C	3/4 & 7/8 13/16 & 7/8 7/8 & 31/32 15/16 & 1	1/2 1/2 1/2 & 9/16	1 /2 & 5/8 9/16 & 5/8 5/8 3/4	1/2 & 9/16 9/16 9/16 5/8 & 11/16	7/16 & 9/16 1/2 & 9/16 9/16 5/8	12 12 13-3/4 13-3/4	FOR "THE	1.40 1.55 1.85 1.85	77311 77311 7033 70330
7735A *7737 7039 7039 A	1-1/16 & 1-1/8 1-1/8 & 1-1/4 1-1/4 & 1-7/16 1-5/16 & 1-1/2	5/8 3/4 & 7/8	7/8 7/8 1 & 1-1/8	3/4 7/8 & 1	3/4 3/4 7/8 & 1	17-1 /4 19 10 19	NUED 1	3.30 3.80 3.80 3.80	7735/ 7737 7039 7039/
Has thi	icker head walls for so		ERN-Differ	ent Openi	ng in Eac	h Hea	L		
6723 6725 6725B 6727	3/8 & 7/16 7/16 & 1/2 1/2 & 9/16 9/16 & 5/8	1/4	0.00 . 1/4	1/4 & 5/16 5/16 & 3/8 3/8 & 7/16	1/4 1/4 5/16 & 3/8	4-1/2 5-1/2 5-1/2 6	DISCO	\$.95 1.00 1.00 1.10	6723 6725 67251 6727

For handy, economical Sets, see page 40.

* REGISTERED TRADE MARK

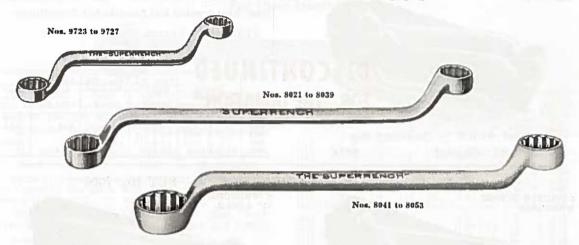
Weights, page J.



AND DROP-FORGED TOOLS

WILLIAMS' 12-POINT-BOX + "SUPERRENCHES" (Chrome-Molybdenum)

DOUBLE OFFSET PATTERNS



These 12-Point Box "Superrenches" are particularly well adapted to work in close quarters. Thin head walls permit use where clearance is extremely limited. The openings grip hex nuts on six sides, preventing all slipping and rounding of the nut's corners. The Long Pattern provides unusual reach and leverage.

Each head has a 12-point opening; consequently, hex nuts can be completely rotated where the swing of the wrench is limited to 30°—less than 1/10 of a full turn.

GENUINE "SUPERRENCHES," forged from Chrome-Molybdenum steel, heat-treated, and furnished in 2 conditions as follows:—

Unfinished—Baked light gray enamel. Finished—Chrome-plated over nickel.

Supplied in Whitworth Standard and Metric sizes also; details on request.

	Nominal	For Amer. Std.	For Amer. Std.	For Amer. Std.	For Amer. Std.	Extreme	LIST	PRICE	
No.	Openings	HEAVY Nut (U.S.S.); Size Bolt	Hex Head Cap Screws; Diam. Screw	LIGHT Nut (S.A.E.); Size Bolt	REGULAR Nut; Size Bolt	Length, Approx.	Un- finished	Finished	No.
		LONG PATTE	RN-Diff	erent Openin	g in Each	Head			THE R
8021 8723 8725	5/16 & 13/32 3/8 & 7/16 7/16 & 1/2	1/8 & 3/16	1/8 3/16 & 1/4 1/4 & 5/16	1/4 & 5/16	1/4	7-1/4 7-3/4 8-1/4	z	\$.80 .95 .95	8021 8723 8725
8725B 8025 8727 8727A 8729	1/2 & 9/16 1/2 & 19/32 9/16 & 5/8 5/8 & 11/16 5/8 & 3/4	1/4 1/4 & 5/16 3/8	5/16 & 3/8 5/16 3/8 & 7/16 7/16 7/16 & 1/2	5/16 & 3/8 5/16 3/8 & 7/16 7/16 7/16 & 1/2	5/16 & 3/8 5/16 & 3/8 3/8 3/8 & 7/16	8-3/4 8-3/4 9-3/4 11	URATIO	1.00 1.00 1.05 1.20 1.20	8725B 8025 8727 8727A 8729
8729A 8731A 8731B	3/4 & 25/32 3/4 & 7/8 13/16 & 7/8	7 /16 1 /2 1 /2	1/2 1/2 & 5/8 9/16 & 5/8	1/2 & 9/16 9/16	7/16 7/16 & 9/16 1/2 & 9/16	12-1/2 12-1/2 12-1/2	E D	1.40 1.40 1.40	8729A 8731A 8731B
8033 8033C	7/8 & 31/32 15/16 & 1	1/2 & 9/16	5/8 3/4	9/16 5/8 & 11/16	9/16 5/8	13-1/2 14-1/2	1	1.65 1.85	8033 8033C
8735A 8039 8039A	1-1/16 & 1-1/8 1-1/4 & 1-7/16 1-5/16 & 1-1/2	5/8 3/4 & 7/8	7/8 1 & 1-1/8	3/4 7/8 & 1	3/4 7/8 & 1	17 19 19	O.	3,30 3.80 3.80	8735 A 8039 8039 A
	FO	R HEAVY SE	RVICE-L	ONG PATTER	N-Round	Hand	_		
8041 8045	1- 7/16 & 1-5/8 1-13/16 & 2	7/8 & 1 1-1/8 & 1-1/4		1 & 1-1/8 1-1/4 & 1-3/8			5	4.95 8.45	8041 8045
8049 8053	2-3/16 & 2-3/8 2-9/16 & 2-3/4	1-3/8 & 1-1/2 1-5/8 & 1-3/4		1-1/2		27 30	Z	10.60 16.25	8049 8053
	S	HORT PATT	ERN-Dif	ferent Openia	ng in Eacl	Head	O		
9723 9725 9725B 9727	3/8 & 7/16 7/16 & 1/2 1/2 & 9/16 9/16 & 5/8	1/4	3/16 & 1/4 1/4 & 5/16 5/16 & 3/8 3/8 & 7/16	1/4 & 5/16 5/16 & 3/8 3/8 & 7/16	1/4 1/4 5/16 & 3/8	5-1/2 5-1/2 5-1/2 6	DISC	.95 1.80 1.00 1.10	9723 9725 9725B 9727

For handy, economical Sets, see page 40.

+ REGISTERED TRADE MARK

Weights, page J.

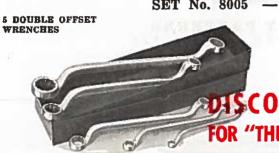
WILLIAMS

AND DROP-FORGED TOOLS

12-POINT BOX +"SUPERRENCH" SETS

(Chrome-Molybdenum)

SET No. 8005 - LONG WRENCHES



Genuine "Superrenches"—Chrome-Molybdenum steel, heat-treated and furnished in 2 conditions:—FINISHED—Chrome-plated over nickel.

Contents of Set No. 8005

Amer. Std. Amer. Std. Amer. Std.

LIST PRICE, in Cardboard Box

RA	TION	Nut (U.S.S.)	Cap Screw	Nut (S.A.E.)	Approx.
8021 8025 8029 8033 8037	5/16 & 13/32 1/2 & 19/32 11/16 & 25/32 7/8 & 31/32 1-1/16 & 1-1/4	1/8 & 3/16 1/4 & 5/16 3/8 & 7/16 1/2 & 9/16 5/8 & 3/4	1/8 5/16 5/8	5/16 9/16 3/4 & 7/8	7-1/4 8-3/4 11 13-1/2 17

SET No. 8006 - LONG WRENCHES - SET No. 7006



LIST PRICE in Cardboard Pox ET 8006 Franked \$7.60

No.	No: Ope			1	N	.Std. VV. ut S.)	Ca	S	Si cr		LI	ĠĦ	. Std T Nu .E.)	t	ŒC			Length Approx.
8723	3/8	Æ	7/1	W	9		3/1	6 &	1/				1/4	1	П		1/4	7-3/4
8025	1/2	&	19/3	2 1/	4 &	5/16	5/1	В			5/1	6		ı,				8-3/4
8727	9/16	å.	5/8				3/B	q.	7/	16	3/8	d	7/1	6]	5/16	ď	3/8	9-3/4
8029	11/16	å:	25/3	2 3/	84	7/16								- 1			1111	11
8731A	3/4	å	7/8	1		1/2	1/2	de	5/		1/2		9/1	8	7/16	de	9/16	
8033C	15/16	d¢.	1	1-					3/	4	5/8	d	11/1	6			5/8	14-1/2



LIST PRICE, in Coldward Box SET 7006—Fighter 101 \$7.6

No.	Nomi Openi		AL OF HEA Nu Nu	3.)	ap a	lead	LIG	HΤ		Amer.Std. REGULAR Nut	Length Approx
7723 7025	3/8 &	7/10	U4 & 8	116 5	/16 d	1/4	5/16		1/4	1/4	7-3/8 8-1/4
7727	9/16 &	5/8		3	/8 å	7/16	3/8	k	7/16	5/16 & 3/8	9-1/4
7029 7731 Å		7/8		/16 /2	/2 &		1/2	d.	9/16	7/16 & 9/16	10-1/2 13
7033C	15/18 &	1				3/4	5/8	de	11/16	5/8	13-3/4

SET No. 9703 — SHORT WRENCHES — SET No. 6703





No.	Nominal Openings	Amer.Std. HEAVY Nut (U.S.S.)	Amer. Std. Hex Head Cap Screw		REGULAR	Length Approx.
9723 +9725 +9725B 9727	3/8 & 7/16 7/16 & 1/2 1/2 & 9/16 9/16 & 5/8	1/4	3/16 & 1/4 1/4 & 5/16 5/16 & 3/8 3/8 & 7/16	5/16 & 3/8	1/4 5/16 & 3/8	4-1/2 5-1/2 5-1/2 6

*Wrench No. 9725 is regularly supplied in Set, but No. 9725B may be substituted, if desired.

3 WRENCHES
15* ANGLE

LIST PRICE, in Cardboard Box SET 6703—Finished \$3.05

No.	Nominal Openings	Amer.Std. HEAVY Nut (U.B.S.)	Amer. Std. Hex Head Cap Screw	Amer, Std. LIGHT Nut (S.A.E.)	Amer. Std. REGULAR	Length Approx
6723 *6725 *6725B 6727	3/8 & 7/16 7/16 & 1/2 1/2 & 9/16 9/16 & 5/8	1/4	3/16 & 1/4 1/4 & 5/16 5/16 & 3/8 3/8 & 7/16	5/18 & 3/8	1/4 1/4 5/16 & 3/8	

*Wrench No. 6725 is regularly supplied in Set, but No. 6725B may be substituted, if desired.

For Set 8105, Single Offset Pattern, see opposite page



AND DROP-FORGED TOOLS

WILLIAMS' + "SUPERRENCHES"

(Chrome-Molybdenum)

OPEN END-BOX PATTERN
For Close Quarters



THE "SUPERRENCH"



These long, slender "Superrenches", combining two styles of head, are designed especially for use in close quarters and tight corners.

Open end is thin, with slim jaws and opening at angle of 15°.

Box end, with 12-point opening and thin walls, is offset from plane of handle; see illustration.

Same size opening in both heads; where one can not operate, the other will. Each rotates hex nuts when the wrench can swing only 30°.

Drop-forged from Chrome-Alloy steel, heattreated, chrome-plated; faces of open end buffed. Sold individually and in Sets.

Whitworth Std. sizes also; details on request.

No.	Nomin Openin		Amer. Std. Heavy Nut (U.S.S.)	Amer. Std. Hex Cap Screw	Amer. Std. Light Nut (8.A.E.)		4.	
1160 1161 1162 1163 1164	3/8 & 7/10 & 1/2 & 9/16 & 5/8 &	3/8 7/16 1/2 9/16 5/8	1/4	3/16 1/4 5/16 3/8 7/16	1/4 5/16 3/8 7/16	1/4 5/16 3/8	5-3/8 6 6-3/4 7-5/8	\$1.15 1.18 1.28 1.40 1.55
1165 1166 1167 1167A	11/16 & 3/4 & 7/8 &	11/16 3/4 7/8 13/16	3/8	1/2 5/8 9/16	1/2 9/16	7/16 9/16 1/2	8-1/2 9-1/2 10-1/2 10-1/2	1.70 1.85 2.00 2.00
[168 1170 1171 1173 1176		l-1/16 l-1/4	5/8 3/4	3/4	5/8 11/16 3/4 7/8 1	5/8	13 13 15 18 21	2.15 2.15 2.40 2.90 3.45



OPEN END-BOX SETS

SET No. 1168-S List Price \$5.40 Complete in Cardboard Box

Set No. 1168-S with 4 wrenches, 1 each Nos. 1161, 1162, 1163 and 1164, covers all the more popular small sizes of various nuts and capscrews; see table above.

SET No. 1169-S LIST PRICE In Leatherette Roll \$10.05

In Cardboard Box \$8.95



Set No. 1169-S contains 6 wrenches, 1 each, Nos. 1161, 1162, 1163, 1164, 1165 and 1166, and will service 16 different sizes of nuts and capscrews; see table above. All are popular sizes.

SINGLE OFFSET 12-POINT BOX PATTERN



These 12-point Box "Superrenches", with the same opening in both heads, are unusually efficient in tight corners and close quarters. The straight head rotates hex nuts where the wrench swings but 15°; the offset end requires only 30°— less than 1/10 of a full turn. Where one head cannot operate, the other will. Length, 8-1/2" to 12". Furnished in 2 styles of finish:—
Finished—Chrome-plated over nickel.

Unfinished—Chrome-plated over nickel.
Unfinished—Baked light gray enamel.
Sold individually and in Sets.

Weights, pages I and J.

REGISTERED TRADE MARK

Finished will be upplied unless otherwise specified.

No.	Nominal	A. Sta	ne st	Amer. Std.			Price
140.	Openings	Heavy Nut (U.S.S.)	Screw		Reght. Nut	fin- ished	Fin-
8128 8132	7/16 & 7/16 1/2 & 1/2	1/4	1/4 5/16	5/16	1/4	\$1.20 1.30	\$1.35 1.45
8136 8140 8148	9/16 & 9/16 5/8 & 5/8 3/4 & 3/4		3/8 7/16 1/2	3/8 7/16 1/2	5/16 3/8 7/16	1.40 1.50 1.60	1.65

WILLIAMS

AND DROP-FORGED TOOLS

WILLIAMS' +"SUPERRENCHES" (Chrome-Molybdenum)

ADJUSTABLE HOOK SPANNERS



Three sizes of Spanners offer an unusual combination of strength and ready adjustment, fining all rounds from 20 to 4-3/4" diameter.

Dron Roll of an Steal hear retter mor chrimedates the of jave and chrimedates the of jave and christs in the hear retter to the christs of the christs o

STAL NO WIO

vers a wide

fold of usefulness. It is a necially serviceable on the serviceable of the serviceable of

No.	ca any to-	Extreme Length,	Thick	ness	Depth	List Ench,
	Piameter	Approx.	Handle	Hook	Hook	plated
1471 1472 1474	3/4 to 2 1 1/4 to 3 2 to 4 3/4	6 3/8 8 1/8 11 3/8	1/4 9/32 5/16	11/32 13/32 15/32	1/8 5/32 3/16	\$3.05 3.50 4.85

Carbon Steel Wrenches, page 23.

WILLIAMS' "MULTISOCKET" WRENCH EIGHT-IN-ONE



1990 — List Price — \$4.00 each 8 Different Caroint Openings Small Head; V16, 1/2, 9/16, 19/32" Large Head; 5/8, 11/16, 3/4, 7/8"

The orthogonal grip hex nuts on six sides; no slipping of counding of the nuts' corners.

Swive heads, with index spring to retain working opening in position for use, permit handle to be operated at practically any angle desired. Can be used as a socket wrench.

The entire wrench is drop-forged, heat-treated and finished in cadmium-plate. Length, 9 inches. Weights, pages I and J.

+ REGISTERED TRADE MARK

EXTRA LONG THIN PATTERN

15° Angle

Thin - Light - Strong

These extra long (12-1/2") wrenches are slender and light for easy adjustment, and narrow jawed for close places. Openings range from 3/8 to 5/8". All heads 3/16" thick.

Sold individually and in sets.

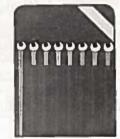
Drop-forged from special Chrome-Alloy steel, and heat-treated for maximum strength. Cadmium-plated.

No.	Nominal Opening	Amer. Std. HexHd. Cap Screw	Amer. Std. LIGHT Nut (8.A.E.)	Amer. Std. REGLR. Nut	List Price Each
A100C A100 A100A A100B A101	3/8 7/16 1/2 9/16 5/8	3/16 1/4 5/16 3/8 7/16	1/4 5/16 3/8 7/16	1/4 5/16 3/8	\$1.18 1.18 1.18 1.18 1.27

Set No. 106-6 wrenches; 2 each of Nos. A100A, A100B and A101.

Set No. 108-8 wrenches; 2 each of Nos. A100, A100A, A100B and A101.





SUPERRENCH"

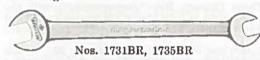
Set No. 106

Set No. 108

	LIST PRICE	No. 106	No. 10
In	Leatherette Roll	\$7.85	\$10.30
In	Cardboard Box	7.25	9.60

LONG DOUBLE HEAD PATTERN

Long Pattern for heavy service where maximum leverage is desirable. Chrome-Finished with heads buffed bright.



No.	Nominal Openings	Amer. Std. Hex Head Cap Screws	Amer. Std. Regular Nuts	Lgth.	Thick. Heads	List Price
1731BR	3/4 & 7/8	1/2 & 5/8	7/16 & 9/16	15	3/8	\$4.30
1735BR	1 & 1-1/8	3/4 & 7/8	5/8 & 3/4	16	1/2	5.75

10-4

➂



AND DROP-FORGED TOOLS

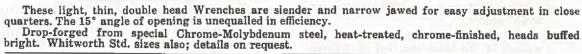
WILLIAMS' +"SUPERRENCHES"

(Chrome-Molybdenum)

LIGHT THIN PATTERN-15° Angle, Double Head



LIGHT - THIN - STRONG Different Opening in Each Head



No.	Nominal Openings	For Amer. Std. HEAVY Nut (U.S.S.); Size Bolt	For Amer. Std. Hex Head Cap Screw; Diam. Screw	For Amer. Std. LiGHT Nut (S.A.E.); Size Bolt	For Amer. Std. REGULAR Nut; Size Bolt	Ex- treme Length	Thick- ness Heads	LIST PRICE, Chrome- Finished	No.
1090A 1090B 1090 1090C	3/8 & 7/16 13/32 & 1/2 7/16 & 1/2 7/16 & 9/16	3/16 & 1/4 1/4	3/16 & 1/4 5/16 1/4 & 5/16 1/4 & 3/8	1/4 5/16 1/4 & 5/16 1/4 & 3/8	1/4 1/4 & 5/16	8888	5/32 5/32 5/32 5/32	\$.76 .76 .76 .76	1090A 1090B 1090 1090C
1090F 1090D 1090E	1/2 & 17/32 1/2 & 9/16 1/2 & 19/32	1/4 1/4 1/4 & 5/16	5/16 5/16 & 3/8 5/16	5/16 5/16 & 3/8 5/16	5/16	8 8	5/32 5/32 5/32	.76 .76 .76	1090F 1090D 1090E
1092B 1092 1092C 1092D 1092F	1/2 & 11/16 9/16 & 5/8 9/16 & 21/32 19/32 & 11/16 5/8 & 11/16	1/4 & 3/8 5/16 & 3/8 3/8	5/16 3/8 & 7/16 3/8 7/16	5/16 3/8 & 7/16 3/8	5/16 & 3/8 5/16 3/8	88888	3/16 3/16 3/16 3/16 3/16	.82 .82 .82 .82 .82	1092B 1092 1092C 1092D 1092F
1094A 1094B 1094D	5/8 & 3/4 19/32 & 25/32 11/16 & 25/32	5/16 & 7/16 3/8 & 7/16	7/16 & 1/2	7/16 & 1/2	3/8 & 7/16	9 9	7/32 7/32 7/32	.88 .88	1094A 1094B 1094D
1094F 1094G 1094	11/16 & 7/8 3/4 & 13/16 3/4 & 7/8	3/8 & 1/2	5/8 1/2 & 9/16 1/2 & 5/8	9/16 1/2 1/2 & 9/16	9/16 7/16 & 1/2 7/16 & 9/16	9 9 9	7/32 7/32 7/32	.88 .88 .88	1094F 1094G 1094
1096A 1096H 1096	25/32 & 7/8 7/8 & 1 1/16 15/16 & 1	7/16 & 1/2 1/2 & 5/8	5/8 5/8 3/4	9/16 & 3/4 5/8	9/16 9/16 5/8	9 9	7/32 7/32 7/32	1.06 1.06 1.06	1096A 1096H 1096

OFFSET SOCKET "SUPERRENCH"

(Chrome-Molybdenum)

This heavy duty "Superrench" was especially designed for cracking-unit service in Oil Refineries. It is also well adapted for heavy industrial service.

Forged from Chrome-Molybdenum steel, heat-treated and finished in baked gray enamel.



No.	Amer. Std. HEAVY Nut (U.S.S.)	Amer. Std LIGHT Nut (S.A.E.)	Nominal Opening Across Flats	Diam. of Head	Extreme Length, Approx.	Handle Offset in Clear	LIST PRICE Each	No.
2273 2274 2276 2277 2278 2279 2280 2280 A	5/8 3/4 7/8 1 1 1/8 1 1/4 1 3/8 1 1/2	3/4 7/8 1 1 1/8 1 1/4 1 3/8 1 1/2	1 1/16 1 1/4 1 7/16 1 5/8 1 13/16 2 3/16 2 3/8	1 3/4 2 1/4 2 1/2 2 1/2 2 3/4 3 3/16 3 3/8	11 5/8 12 3/8 14 7/8 16 1/2 18 1/4 20 21 3/4 21 3/4	2 3/4 2 7/8 3 1/2 3 7/8 4 3/8 4 7/8 5 3/8 5 3/8	\$ 4.80 5.40 6.50 7.75 9.25 11.00 14.00	2273 2274 2276 2277 2278 2279 2280 2280

Carbon Steel Offset Socket Wrenches, page 26

+ REGISTERED TRADE MARK

Weights, pages I and J.



AND DROP-FORGED TOOLS

WILLIAMS' MIDGET +"SUPERRENCHES"

(Chrome-Molybdenum)





Midget "Superrenches" are unusually thin and slim, but surprisingly tough and strong. On generators, wiring-connections, radios, all delicate adjustments and in the closest quarters, these wrenches are invaluable.

Made in two styles as follows:-

Nos. 1106 to 1109 have two different openings at 15° angle.

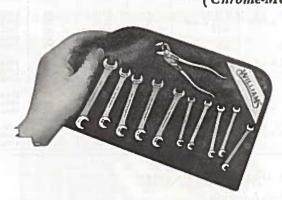
Nos. 1112 to 1132 have both openings in each wrench of the same size, but at different angles (15° and 75°)-where one head cannot operate, the other will.

Genuine "Superrenches," Chrome-Molybdenum steel, heat-treated, chrome-plated.

No.	Nominal Openings	Extreme Length	Thickness Heads	LIST PRICE	No.
	15° A	NGLE OP	ENING		
1106 1107 1108 1109	13/64 & 7/32 15/64 & 1/4 9/32 & 11/32 5/16 & 3/8	3 3-1/2 3-1/2	3/32 3/32 1/8 1/8	\$.65 .65 .72 .72	110 110 110 110
	15-75°	ANGLE O	PENING		
1112 1113 1114 1115 1116	3/16 & 3/16 13/64 & 13/64 7/32 & 7/32 15/64 & 15/64 1/4 & 1/4	3	3/32	\$.65 .65 .65 .65	1111 1111 1111 1111 1111
1118 1120 1122 1124	9/32 & 9/32 5/16 & 5/16 11/32 & 11/32 3/8 & 3/8	3-3/4	1/8	.72 .72 .72 .72	1112 112 112 112
1128	7/16 & 7/16	4-1/2	5/32 {	.82	112

Supplied in handy Sets also; see below.

MIDGET "SUPERRENCH" ELECTRICAL SETS (Chrome-Molybdenum)



LIST PRICES Complete in Leatherette Roll

SET 1140P-with "Superplier" No. 1519......\$9.30 SET 1140 -without "Superplier" 7.45 Set 1140P furnished, unless otherwise specified.

An assortment of 10 Midget "Superrenches," Nos. 1112, 1113, 1114, 1115, 1116, 1118, 1120, 1122, 1124, 1128 and "Superplier" 1519, for those troublesome little jobs requiring small tools that are a help-not a hindrance.



SET No. 1148P-LIST PRICE, \$5.15 Complete in Leatherette Roll

A compact, handy assortment of four midget size "Superrenches," Nos. 1106, 1107, 1108, 1109, and "Superplier" No. 1519 at very moderate price. All are especially designed for use in connection with wiring, panels and switchboards, radios and the innumerable jobs requiring small but strong tools with thin, slim jaws.

Midget "Superplier" No. 1519, with 4-position slip-joint, has an opening range from 0 to 9/16". The jaws are parallel at the most important openings, thus minimizing injury to nuts. The handles, with slightly flared ends, provide ideal finger control. Drop-forged from Chrome-Alloy steel, heat-treated, cadmium finished. Length, 4-1/2". See page 71.

Weights, page I.

REGISTERED TRADE MARK



AND DROP-FORGED TOOLS

WILLIAMS' REFRIGERATION WRENCHES

WILLIAMS' RATCHET WRENCHES (Drop-Forged - Chrome-plated)



Especially efficient for speedy and accurate adjustment of all valves.

No. B-50A — List Price, \$3.60 Has 1/4" square drive-opening in ratchet; also, 1/4" sq. hole near end of handle. Length, 6-1/2".

No. B-50B — List Price, \$3.30 Has 5/16" sq. ratchet drive-open'g. Lgth. 6-1/2".

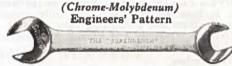
WILLIAMS' "SUPERJUSTABLE" WRENCHES



Drop-forged from Chrome-Alloy Steel, "Superjustables" are thin and light, yet strong and tough. Square shoulders on Sliding Jaw shank permit heavier, stronger "web" with no increase in head thickness. Chrome-plated.

	List	-		as Head	Extra	Extra Parts-Price, Each				
Size, Inch.	Price, Each	Capac- ity	Tip-of Jaws	Ex- treme	Jaw	Knurl	Pin	Spring		
4	\$1.30	1/2	9/64	5/16	\$.44	\$.18	\$.06	\$.06		
6	1.30	3/4	7/32	3/8	.44	.18	.06	.06		
8	1.60	15/16	17/64	1/2	.56	.21	.06	.06		
10	2.05	1-1/8	23/64	19/32	.74	24	.00	.06		
12	2.95	1-5/16	15/32	23/32	1.06	.38	.15	.06		

WILLIAMS' "SUPERRENCHES"



"Superrenches", with thin heads and narrow, pointed jaws are particularly well adapted to work in close quarters. Amazingly strong.

Heat-treated, chrome-plated, heads buffed. Fifty other sizes; openings 5/16 to 1-5/8".

No.	Nominal Openings	Amer. Std. Hex Head Cap Screw	Amer. Std. LIGHT Nut (S.A.E.)	Amer. Std. REGULAR Nut	Ex- treme Lgth.	List Price, Ench
1723 1725B 1729 1733	3/8 & 1/4 1/4 & 3/4 1/4 & 3/4 1/8 & 1	1/4 & 1/4 1/4 & 1/4 1/4 & 1/4 1/4 & 1/4	1/4 & 3/4 1/4 & 1/2 1/4 & 1/2	3/6 de 3/6 3/6 de 3/6	476 616 776 1076	\$.58 .82 1.24 2.25

WILLIAMS' "SUPERPLIERS"



For general refrigeration use and especially serviceable on Frigidaire expansion valves. Slip joint — 8 adjustments. Jaws close entirely, grip any thickness up to 2". Knurled handles provide firm hand grip.

Drop-forged from special Chrome-Alloy steel and heat-treated. Gray satin finish, faces polished. Length, 9-1/2".

For Refrigeration "Supersocket" Set see page 65

WILLIAMS' "SUPERRENCHES" (Chrome-Molybdenum) OPEN-BOX PATTERN



Thin heads and narrow jaws permit easy operation in close quarters. 12-point openings turn the nut readily where "Superrenches" can be swung only 30°. Gripping power is more than double that of ordinary wrenches—will not slip.

Drop-forged from Chrome-Molybdenum steel, heat-treated and chrome-plated, heads buffed.

No.	Nominal Opening	Thickness Heads	Extreme Length	List Price, Each	No.
8924	3/4	1/4 1/4	6-1/2	\$1.15	8924
8928	7/8		6-1/2	1.15	8928
8930 8932	15/16	1/4 1/4	6-1/2 6-1/2	1.15 1.15	8930 8932
8934	1-1/16	1/4	6-1/2	1.15	8934
8936	1-1/8		6-1/2	1.15	8936

WILLIAMS' "SUPERIOR" SOCKET WRENCHES (Carbon Steel)

Slim, light design, forged from a special grade of strong, tough carbon steel. Heat-treated and finished in black enamel, baked on; face of head, polished bright.



Many other sizes, both Square and Hex openings, in stock. Modified lengths to order in reasonable quantities.

SQUARE OPENINGS Amer. Std LIGHT Amer. Std. REGLR. Nut Diam, of Head List Price, Each Cap No. Openg. Berew Screw (B.A.E.) \$.70 .80 .80 .88 .98 1.16 1.26 96011 96111 9611 96211 963H 96511 96611 1/8 3/16 1/4 5/16 3/8 7/16 5/16 1/2 1/2 5/8 11/16 7/8 1/8 3/16 1/4 5/16 3/8 7/16 1/2 9/16 5/8 1/4 5/16 3/8 7/16 1/2 1/4 1/2 9/16 5/8 5/16 968H

1117		HEX	AGON	OPEN	INGS		
No.	Nom- inal Openg.	Amer. Btd. HEAVY Nut (U.S.S.)	Amer. Std. Hex Head Cap Screw		Amer. Std. REGLR. Nut	Diam. of Head	List Price, Each
961 A 962D 963 A 963D 964 A 965D 965 A 966D	13/32 7/16 1/2 9/16 19/32	1/8 3/16 1/4 5/16	1/8 3/16 1/4 5/16 3/8	1/4 5/16 3/8 7/16	1/4 5/16 3/8	1/2 5/8 11/16 11/16 3/4 7/8 7/8	\$.80 .88 .98 .98 1.04 1.16 1.16 1.26

For Refrigeration Wheel Puller see page 73

WILLIAMS' +"SUPERECTOR" REVERSIBLE RATCHET WRENCHES With Quadruple Pawls and Drop-Forged Handle



Williams' "Superector" Ratchet Wrenches are built for rapid operation in the most severe service such as bridge, structural and other work requiring fast, dependable tools of rugged strength. They are instantly reversible in action. Three sizes of mechanism - E1, E2 and E3 - in five long, slim but powerful handles provide ample leverage for the hardest jobs.



HEX BUCKETS

SOCKETS have hole extending clear through their center so that nuts may be turned all the way down on any length of bolt. They are in three groups— E1, E2 and E3—to fit corresponding wrench handles, as shown in table below. Sockets in one group are not interchangeable with those in another group. All are heat-treated for maximum tough strength.

Whitworth Std. sizes start on page 124.



SQUARE SOCKETS

Only Williams' "SUPERECTOR" offers all the following advantages:-

QUADRUPLE PAWLS. Instead of the usual single pawl, bearing against one gear tooth, the "Superector" provides increased bearing and strength by 2 pawls engaging 2 teeth for both ON and OFF rotation of nuts. All 4 pawls are of hardened tool steel, so designed as to provide pure crushing action on the pawls—the sturdiest construction possible, with no "back-lash."

HANDLE, or Wrench proper, is drop-forged-not cast-in order to utilize the extra strength afforded by the pawls.

GEAR TEETH. The "Superector" is the only line of wrenches of this type with 20 teeth in all socket gears, instead of the usual 16 teeth. Con-

sequently, all wrenches will rotate nuts with only an 18° swing of the wrench as against 22-1/2°.

SHIFTER-LEVER, when in neutral, completely disengages all pawls for easy insertion and re-moval of the Socket. A flip of the lever reverses the action of the wrench.

SOCKET RETAINING COLLAR has a projection on its inner surface which registers easily with a corresponding slot in the neck of the Socket. No fumbling for set screw "spots" when engaging the headless, slotted socket screws.

COVER PLATE, securely seated in the wrench head, is fastened by one screw, fully enclosing the mechanism and permitting easy removal.

FINISH. Wrenches and Sockets are finished in baked light gray enamel.

When ordering, always specify Wrenches and Sockets by number.

WI	RENCI	IES		SO	CKETS	ONLY-H	ex and Sq	iare	
No.	Length, from center of Head	LIST Wrench Only, without Socket	Nominal Opening, Size Across Flats	Nun	Saunta	Amer. Std. HEAVY Nut (U.S.S.) Hex & Sqr.	Nut	REGLR. Nut	Square
		E1 SOC	KETS be			d E1-36 Wr			
E1-24 E1-36	24 36	\$12.60 19.80	1- 1/16 1- 1/8 1- 1/4 1- 5/16	E1-617 E1-618 E1-620 E1-621	E1-418 E1-420	5/8	3/4	5/8 3/4 7/8	\$4.85 4.85 4.90 5.00 5.10
			1- 7/16 1- 1/2 1- 5/8 1-11/16 1- 3/4	E1-623 E1-624 E1-626	E1-423 E1-424 E1-426		1-1/8		5.20 5.30 5.40 5.50 5.60
Note:	Sockets a fit both Wrenches	above	1-13/16 1-7/8 2-1/16 2-3/16	E1-629 E1-630 E1-632 E1-633 E1-635	E1-429 E1-430 E1-432	1-1/8 1-1/4 1-3/8	1-1/4 1-3/8 1-1/2	1-1/4 I-3/8	5.65 5.75
_		E2 SOC	2- 1/4		E1-436	d E2-48 Wr		1-1/2	6.40
E2-36 E2-48	36 48	\$25.20 32.40	2- 3/16 2- 3/8 2- 9/16	E2-632 E2-635 E2-638 E2-641	E2-432 E2-435 E2-438	1-1/4 1-3/8 1-1/2	1-3/8 1-1/2		\$ 9.70 10.00 10.40 10.80
Note:	Sockets a fit both Wrenches	above	2- 3/4 2-15/16 3- 1/8	E2-644 E2-647 E2-650	E2-444 E2-447 E2-450	1-3/4 1-7/8 2			11.30 11.85 12.40
		E3				48 Wrench			1 800 1
E3-48 Note:	Sockets a fit the Wrench.	\$50.40 t right above	3- 1/8 3- 1/2 3- 7/8 4- 1/4 4- 5/8	E3-656 E3-662 E3-668	E3-462	2-1/4 2-1/2 2-3/4			\$20.10 20.80 21.60 22.51 23.61

"SUPERECTOR" SET No. E1-12



List Price, Complete-\$71.25 12 Pieces

In Wooden Box, 36 x 6 x 5-1/2"

"Superector" Wrench E1-24 and 11 Sockets:

7 Hex — 1-1/16, 1-1/4, 1-7/16, 1-5/8, 1-13/16, 2 and 2-3/16". 4 Square-1-1/16, 1-1/4, 1-7/16 and 1-5/8 inches.

WILLIAMS'+"SUPERSOCKET" WRENCHES

Williams' "Supersocket" Wrenches are strong, dependable tools in which Williams' high standard of quality has been maintained throughout. Five separate and distinct patterns of Sockets, with a full assortment of Handles and Parts for each, cover practically all industrial needs:—

MIDGET Electrical—1/4" Square Drive. Slim, Straight Wall Sockets for all delicate adjustments. Openings, 3/16 to 7/16"—4, 6, 8 and 12-points.

BANTAM—3/8" Square Drive. Light, but strong Straight Wall Sockets with thin walls for use in close quarters. 12-point openings, 1/4 to 3/4".

STANDARD-1/2" Square Drive, includes Sockets with 12-point and Square openings up to 1-1/4" for general service.

HEAVY DUTY-3/4" Square Drive. Sockets have 12-point openings 7/8 to 2-1/4". Made for harder service than the ordinary run of work.

EXTRA HEAVY DUTY—1" Square Drive. Sockets have 12-point openings 1-1/16 to 2-3/4". Ruggedly designed for the toughest kind of service.

"SUPERSOCKET" NUMBERING SYSTEM

This system, developed by J. H. Williams & Co., has proven so simple in application that it has met general approval. Its description follows:—

The five Patterns of "Supersockets" are called-

"Midget" "Bantam" "Standard" "Heavy Duty" "Extra Heavy Duty"

The symbol for each pattern is:

NM B S H NX

The drive for each pattern is:

1/4" Square 3/8" Square 1/2" Square 3/4" Square 1" Square

SOCKET NUMBERS

- 1. Prefix letter in the piece number indicates the Pattern and hence the size of drive. Thus, No. S-1214 indicates Standard Pattern, 1/2" square drive.
- 2. The first figure, or the first two figures in the piece number indicate the number of "points" in the opening of the "Supersocket"—i.e., 4, 6, 8 or 12 points. The last two figures in the piece number indicate the nominal socket opening in 32nds of an inch. Thus, No. B-1214 indicates Bantam Pattern, 3/8" square drive, 12-point 14/82, or 7/16" opening.
- 3. Variations: Standard Pattern Sockets are Taper Nose, or Straight Wall in style. The prefix ST indicates Straight Wall. Similarly, SD as prefixed to the piece number means Extra Deep Standard sockets.

HANDLES and PARTS NUMBERS

- 1. Prefix letter in the piece number indicates pattern and hence size of drive, similarly to Sockets, above.
- 2. Figures indicate the particular Part. The same figures are used in all other Patterns of the same style Part. For instance:—

Sliding T Handle Midget Bantam Standard Heavy Duty Extra Heavy Duty NM-20A B-20A S-20C H-20A NX-20B

3. The suffix letter denotes some variation in form. The "C" in No. S-20C, for instance, indicates the handle is offset, not straight, as are NM-20A, B-20A, etc.

+ REGISTERED TRADE MARK



AND DROP-FORGED TOOLS

WILLIAMS'+"SUPERSOCKET" WRENCHES Chrome-plated over Nickel

MIDGET PATTERN—1/4ⁿ SQUARE DRIVE (Previously 9/32" Sq. Drive—Now Obsolete)

SOCKETS



With Hex, 12-Point and Square Openings Williams' Midget Electrical Sockets are unequalled in cramped quarters and for delicate adjustments. Invaluable time-savers on Generators, Wiring-connections, Radios, etc.

Their thin, straight walls enable them to operate readily on troublesome little jobs where no ordinary socket or wrench could even get in and grip the nut. Furnished with hex and square openings as listed.

Accurately made from Chrome-Molybdenum steel and heat-treated in electric furnaces. Uniformity of product and tough, dependable strength are assured.

All Sockets packed 6 in a box.

		SO	CKETS FO	R HE	X NUTS	AND CAP S	SCREWS	A PERMIT	SQUARE		
Nominal Opening	Hexa Sock				Std. HEAVY	Std. Hex Head HEAVY Cap I		Amer. Std. Square Machine Socket		List	Nominal
Opening	No.	List Price	No.	List Price	Nut (U.S.S.); Size Bolt		Nut (S A.E.); Size Bolt	Screw Hex Nut	No.	Price	Opening
7/32 1/4	NM-606 NM-607 NM-608 NM-609	.45 .45						No. 2 & 3	NM-406 NM-407 NM-408	\$.45 .45 .45	3/16 7/32 1/4
5/16 11/32 3/8 7/16			NM-1210 NM-1211 NM-1212 NM-1214	\$.45 .45 .45 .45	1/8	3/16 1/4	1/4	5 & 6 8 10 12 & 1/4	†NM-810 †NM-812	.45	5/16 3/8

Patented HANDLES and PARTS List No. Piece Price, Each NM-20A \$1.02 Sliding T Handle-4-1/2" long..... MM-150 Flex Handle only—5-3/4" long; flexible head, knurled grip, crosshole for use with Sliding Bar...... NM-42 1.40 NM-42B Reversible Ratchet-4-1/2" long. 24 teeth in Rat-NM-51 chet-gear instead of usual 14 to 20. Turning shiftlever reverses action instantly..... 4.00 NM-102 Extension-2' long. Otherwise like NM-115 Extension-Driver has lockable-revolving, knurled handle with 1/4' square drive-opening in end. May be used either as an Extension with handy revolving NM-51 NM-110 NM-110 grip for spinning nuts, or as a Driver with handle locked. A slight turn of the handle locks and unlocks same instantly, 5-3/8" long..... Extension—6" long...... 1.08 NM-115 Adapter—1/4" square male and 0/32" square female. Adapts Sockets with 1/4" square drive-openings to Handles with 9/32" square drive-plug..... MM-180 MM-130 .90 S. S. Adapter—9/32" square male and 1/4" square female. Adapts Sockets with 9/32" square drive-openings to Handles with 1/4" square drive-plug....... MM-131 NM-42 90 MM-181 MM-150 | Plug Adapter-1" long; 1/4" sq. and 9/32" sq. male. 60

Weights, pages J and K.

† 8-Point opening.

NM-20A

NM-115

NM-42B

For Refrigeration Set, see page 65; Hollow-Screw Set, page 69.



AND DROP-FORGED TOOLS

WILLIAMS' MIDGET WRENCH SETS

Chrome-plated over Nickel *1/4" Square Drive Sockets

Any Williams' Midget Set is a handful of helpfulness on those fussy, troublesome little jobs that ordinary wrenches can't handle. These various combinations of Midget "Supersockets," "Superrenches" and "Superpliers" are ideal for all delicate adjustments on generators, wiring-connections, radios, etc. Unequalled in cramped quarters. Forged Chrome-Molybdenum steel, heat-treated, chrome-finished.

"SUPERSOCKET" ELECTRICAL SET No. 1269PR

LIST PRICE, Complete — In Strong Steel Case, 5-1/2 x 3 x 1"

Set 1269PR—complete as illustrated
Set 1269P—without "Superratchet"
Set 1269 —without "Superplier" and "Superratchet"
Set 1269PR will be furnished, unless otherwise specified.

Contents of Set 1269PR 8 Midget "Supersockets"—4 with Hex openings 3/16, 7/32, 1/4 and 9/32"; 4 with 12-point openings 5/16, 11/32, 3/8 and 7/16". Reversible "Superratchet," 4-1/2" long; Sliding T Handle, 4-1/2" long. Extension-Driver, 5-3/8", with revolving, lockable grip. Midget "Superpliers," 4-1/2".



COMBINATION ELECTRICAL SET No. 1285P



Contents

8 Midget "Supersockets"—4
Hex openings, 3/16, 7/32, 1/4
and 9/32"; 4 twelve-point openings 5/16, 11/32, 3/8, 7/16".
Sliding T Handle, 4-1/2"
long; Extension-Driver with
revolving, lockable grip, 5-3/8",
4 Midget "Superrenches" (3 to
3-1/2" long)—openings 13/64,
7/32, 15/64, 1/4, 9/32, 5/16,
11/32 and 3/8".
Midget "Superplier", 4-1/2"
long, see page 71.

LIST PRICE, Complete -In Strong Steel Case, 5-1/2 x 3 x 1" Set 1285P—complete as illustrated \$11.55 Set 1285 —without "Superplier" _____ 9.
Set 1285P will be furnished, unless otherwise specified.

UNIVERSAL ELECTRICAL SET No. 1286PR

Contents

13 Midget "Supersockets"—4
Hex openings, 3/16, 7/32, 1/4
and 9/32"; 4 twelve-point openings 5/16, 11/82, 3/8, 7/18";
3 square openings, 3/16, 7/32,
and 1/4"; 2 eight-point openings, 5/16 and 8/8".
Reversible "Superratchet".
4-1/2" long; Slidling T Handie.
4-1/2"; Extension-Driver with
revolving, lockable grip, 5-3/8".
4 Midget "Superrenches" (3 to
3-1/2" long)—openings 13/64,
7/82, 15/64, 1/4, 9/32, 5/16,
11/32 and 3/8".

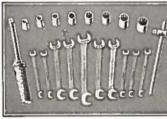
Midget "Superplier", 4-1/2".

LIST PRICE.



LIST PRICE, Complete -In Strong Steel Case, 6-3/4 x 4-1/4 x 1" Set 1286PR—complete as illustrated____\$18.50

COMBINATION ELECTRICAL SET No. 1291P





LIST PRICE, Complete -In Strong Steel Case, 5-1/2 x 3 x 1" Set 1291P-with "Superplier" No. 1519___\$15.85 Set 1291 -without "Superplier" ____ Set 1291P will be furnished, unless otherwise specified.

Contents of Set 1291P

8 Midget "Supersockets"-4 Hex openings, 3/16, 7/32, 1/4 and 9/32"; 4 twelve-point openings, 5/16, 11/32, 3/8, 7/16".

Sliding T Handle, 4-1/2" long; Extension-Driver

with revolving, lockable grip, 5-3/8" long.

10 Midget "Superrenches" (3 to 4-1/2" long)—
openings 3/16, 13/64, 7/32, 15/64, 1/4, 9/32, 5/16,
11/32, 3/8 and 7/16".

Midget "Superplier", 4-1/2", page 71.

UNIVERSAL ELECTRICAL **SET No. 1292PR**



NEW

LIST PRICE, Complete -In Strong Steel Case, 6-3/4 x 4-1/4 x 1" Set 1292PR—complete as illustrated \$23.80

Contents of Set 1292PR

13 Midget "Supersockets"—4 Hex openings, 8/16, 7/82, 1/4 and 9/82"; 4 twelve-point openings, 5/16, 11/32, 3/8, 7/16"; 3 square openings, 3/16, 7/32 and 1/4"; 2 eight-point openings, 5/16 and 3/8".

Reversible "Superratchet", 4-1/2" long. Sliding T Handle, 4-1/2" long; Extension-Driver with re-

volving, lockable grip, 5-3/8" long; Extension 6".

10 Midget "Superrenches" (3 to 4-1/2" long)—
openings 3/16, 13/64, 7/32, 15/64, 1/4, 9/32, 5/16,
11/32, 3/8 and 7/16".

Midget "Superplier", 4-1/2", page 71.

*Previously 9/32" Square Drive-Now Obsolete

WILLIAMC

AND DROP-FORGED TOOLS

WILLIAMS' +"SUPERSOCKET" WRENCHES



Extra Deep

12-Point

12-Point Regular

Chrome-plated over Nickel BANTAM PATTERN 3/8" Square Drive

SOCKETS

Williams' "Bantam" Sockets with thin walls get in and service "buried" nuts in close and awkward corners. Furnished in

four styles; Regular, Extra Deep and Universal, all with 12-point (hex) openings; also, Extra Deep with 8-point (square) openings. All Universal Sockets have an operating range of approximately 130° and are fitted with spring tension to maintain the operating angle desired.

Made from a superior grade of high tensile steel-Chrome-Alloyand heat-treated in electric furnaces for maximum toughness and strength. All Sockets packed 6 in a box.



Universal 12-Point

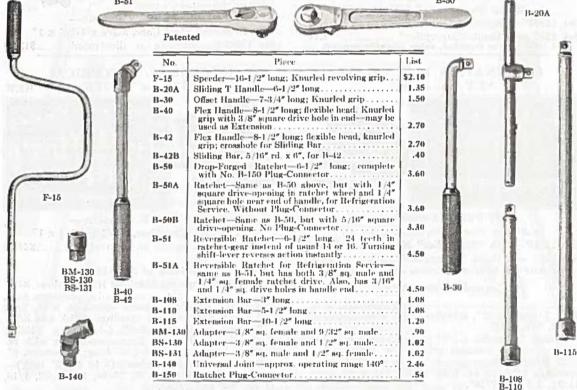


Extra Deep 8-Point

_		1	2-P01N	T OP	ENING	S FO	RHES	NUT	S, ET	C.		8-POINT	r open	TINGS
Size	8	trais	ght Wal	1 800	kets		Amer Std	Amer. Std.	Amer. Std.	Ainei	. Std.	*Extra		O.
Open-	Regu	lar	‡Extra 1	Deep _	Univer	sal	HEAVY	Hex Head.	LIGHT	REGLR.	Mach.	SQUA Socke		Size Open-
ing	No.	List	No.	List	No.	List	(U.S.S.)	Screw	(S.A.E.)	Nut	Screw	No.	List	ing
# 1/4 # 5/16 # 11/32	†B- 608 B-1210 B-1211	\$.72 .72 .72					1/8	1/8			No. 4 5 & 6 8			1 /4 5 /16 11 /32
3/8 7/16 1/2 9/16	B-1212 B-1214 B-1216 B-1218	.72 .72 .72 .72	BD-1214 BD-1216 BD-1218	\$.77 .77	BU-1214 BU-1216 BU-1218	\$2.30 2.30 2.55	1/4	3/16 1/4 5/16 3/8 4	1/4 5/16 3/8	5/16	12-1/4	BD-814 BD-816 BD-818	\$.85 .85 .92	3/8 7/16 1/2 9/16 5/8
5/8 11/16 3/4	B-1220 B-1222 B-1224	.72 .84 .84	BD-1220 BD-1222 BD-1224	.77 .90 1.00	BÜ-1220	2.55	3/8	7/16	7/16	3/8 7/16	3/8	BD-820	92	5/8 11/16 3/4
†Sing!	e Hex: tar	oer nosc		71	Other Property and		‡2 to 2-1/	2" long.	100				*1-1/2	long.

12 to 2-1/2" long. HANDLES and

PARTS B-50



Refrigeration Set, page 65; Hollow-Screw Wrench Set, page 69.

REGISTERED TRADE MARK

*Discontinued—will supply until stock is exhausted.

Weights, pages J and K.



AND DROP-FORGED TOOLS

WILLIAMS' +"SUPERSOCKET" WRENCH SETS

Chrome-plated over Nickel

BANTAM PATTERN-3/8" SQUARE DRIVE

FOR AVIATION AND GENERAL SERVICE

SET No. 6-B

SET No. 7-A



SET No. 5 LIST PRICE — \$24.40 15 Pieces —

7 Sockets and 8 Attachments Same Assortment as Set No. 6, but with 7 instead of 10 Sockets and without B-108.

In Strong Steel Case, 17x4x1-1/4" Total Weight, 6-1/2 lbs. SET No. 6-B LIST PRICE — \$25.50 16 Pieces —

7 Sockets and 9 Attachments In Strong Steel Case, 17x4x1-1/2" Total Weight, 7-1/4 lbs.



LIST PRICE — \$43.95
30 Pieces —
21 Sockets and 9 Attachments

In Strong Steel Case, 17x4-1/2x1-7/8" Total Weight, 9-1/2 lbs.

†NOTE:—Ratchet No. B-50 (page 50) may be substituted for B-51 in Sets Nos. 5, 6-B, and 7-A, at a reduction of \$.90 in List Price of each Set.

SET No. 5

This Set supplies a convenient and economical assortment of 7 "Bantam" Regular Thin Wall "Supersockets" and 8 Accessories for the general run of small work. A minimum of tools provides maximum performance. See table for details.

SET No. 6-B

A practical assortment of tools, providing very efficient aviation service, etc.

Contains the same 7 Regular Thin Wall "Supersockets" and 9 Drivers as Set No. 7-A. Although the general assortment of sockets is not so complete as in the latter, Set No. 6-B provides a wide range of combinations for a great variety of service. See table for details.

SET No. 7-A

This Set is especially designed for aviation, and general use, the large assortment of sockets providing most comprehensive service.

It contains 21 "Bantam" Supersockets as follows: 7 Regular Thin Wall, 12-point openings 3/8 to 3/4"; 4 Universal, 12-point openings 7/16 to 5/8"; 10 Extra Deep, 6 with 12-point openings 7/16 to 3/4" and 4 with 8-point openings 7/16 to 5/8". Covers all popular Nuts and Cap Screws, U. S., S.A.E. and American Standards.

Also, 9 strong, slim Drivers, including Universal Joint; work easily in close quarters. See table for details.

CONTENTS OF SETS Thin Wall Sockets

Nominal	Socket		LIST PRICE	C
Opening	No.	In Set No. 5	In Set No. 6-B	In Set No. 7-A
	REGULA	AR 12-PO	INT	
3/8 7/16 1/2 9/16 5/8 11/16 3/4	B-1212 B-1214 B-1216 B-1218 B-1220 B-1222 B-1224	\$.72 .72 .72 .72 .72 .72 .84 .84	\$.72 .72 .72 .72 .72 .72 .84 .84	\$.72 .72 .72 .72 .72 .72 .84 .84
EXTR	A DEEP - 12	-POINT -	to 2-1/2" L	
7/16 1/2 9/16 5/8 11/16 3/4	BD-1214 BD-1216 BD-1218 BD-1220 BD-1222 BD-1224			.77 .77 .77 .77 .90 1.00
	TRA DEEP -	8-POINT -	-1-1/2" Lon	<u>d</u>
7/16 1/2 9/16 5/8	BD-814 BD-816 BD-818 BD-8202			.85 .85 .92 .92
110000000000000000000000000000000000000	UNIVERS	SAL — 12-PC	INT	
7/16 1/2 9/16 5/8	BU-1214 BU-1216 BU-1218 BU-1220			2.30 2.30 2.55 2.55

Handles and Parts

No.	In Sets Nos. *5, 6-B and 7-A	List Price
F-15 B-20A B-30 B-40 †B-51 *B-108 B-110 B-115 B-140	Speeder—16-1/2" long; knurled, revolving grip. Sliding T Handle—6-1/2" long. Offset Handle—7-3/4" long; knurled grip. Flex Handle—8-1/2" long; fiexible head. Reversible "Superratchet"—6-1/2" long. Extension Bar—3' long. Extension Bar—10-1/2" long. Extension Bar—10-1/2" long. Universal Joint—approx. operating range 140°.	1.35 1.50 2.70 4.50 1.08 1.08

See "Note" above. *No. B-108 omitted from Set 5.

+ REGISTERED TRADE MARK



AND DROP-FORGED TOOLS

WILLIAMS'+"SUPERSOCKET" WRENCHES

Chrome-plated over Nickel

STANDARD PATTERN — 1/2" Square Drive REGULAR SOCKETS



Williams' Standard Sockets, with 12-point and Square openings as listed below, have thin walls for work in close places.

Made from superior high tensile steel—Chrome-Alloy—and heattreated in electric furnaces. All sockets packed 6 in a box.

To drive "Standard" Sockets with "Bantam" Handles, use Adapter BS-130, pages 50 and 64.

Whitworth Standard and Metric sizes also; details on request.

		12-PO	INT OPENIN	GS FOR HE	X NUTS		SQUA	ARE OPEN	INGS
Nominal Open- ing	Straight Wall 12-point Sockets	(a)	For Amer. Std. HEAVY Nut (U.S.S.);	Cap Screws;	For Amer. Std. LIGHT Nut (S.A.E.);	For Amer. Std. REGULAR Nut;	Square Sockets	0	Nom- inal Open- ing
	No.	List	Size Bolt	Diam. Screw	Sizo Bolt	Size Bolt	No.	List	
7/16 1/2 9/16 19/32 5/8 # 21/32	ST-1214 ST-1216 ST-1218 ST-1219 ST-1220	\$.72 .72 .72 .72 .72 .72 .72 .72 .84 .90	1 /4 5 /16	1/4 5/16 3/8 7/16	1/4 5/16 3/8 7/16	1/4 5/16 3/8	S-410 S-412 S-414 S-416 S-418	\$.72 .72 .72 .72 .72 .72	5/16 3/8 7/16 1/2 9/16
# 21/32 11/16 3/4 25/32	ST-1221 ST-1222 ST-1224 ST-1225	.72 .84 .90 .90	3/8	1/2	1/2	7/16	S-420 S-422	.72	5/8
13/16 7/8 15/16	ST-1226 ST-1228	.90	1/2	9/16 5/8	9/16	1/2 9/16	S-424	.90	3/4
15/16 31/32	ST-1230 ST-1231 ST-1232	1.08 1.08 1.08	0/16	3/4	5/8	5/8	S-428		7 /8
1-1/16 1-1/8 1-3/16	S-1234 S-1236 S-1238	1.20 1.32 1.38	5/8	7/8	3/4	3/4	S-432	1.20	·····i
1-1/4	S-1240	1.44	3/4		7/8				

*Discontinued—will supply until stock is exhausted.

STANDARD EXTRA DEEP 12-POINT SOCKETS

For "Buried" Nuts



Cross Hole For Bar

Especially designed for use where the nuts lie some distance from the outer end of the threaded stem. Long and slim with thin walls for use in cramped places. Their 12-point openings permit operation in close quarters where the handle can be swung only 30°.

Carefully made from high tensile steel—Chrome-Molybdenum—and heat-treated. Packed 3 in a box.

Whitworth Standard and Metric sizes also; details on request.

Twelve Point Opening	EXTRA DEEP Sockets			Amer. Std. HEAVY Nut (U.S.S.);	Amer. Std. Hex Head	Amer. Std. LIGHT Nut	Amer. Std. REGULAR
	No.	Length	List	Size Bolt	Cap Screw; Diam. Screw	(8.A.E.); Size Bolt	Nut; Size Bolt
1/2 9/16 5/8 11/16 3/4 13/16	SD-1216 SD-1218 SD-1220	3-1/4 3-1/4 3-1/4	\$1.14 1.14 1.26	1/4	5/16 3/8 7/16	5/16 3/8 7/16	5/16 3/8
3/4 13/16 7/8	SD-1222 SD-1224 SD-1226 SD-1228	3-1 /4 3-1 /4 3-1 /4 3-1 /4	1.26 1.26 1.26 1.26	3/8	1/2 9/16 5/8	1/2 9/16	7/16 1/2 9/16
7/8 15/16 1-1/8	SD-1230 SD-1232 SD-1236	3-1/4 3-1/4 3-1/4	1.38 1.50 1.68		3/4 7/8	5/8	5/8

Weights, page K.

REGISTERED TRADE MARK

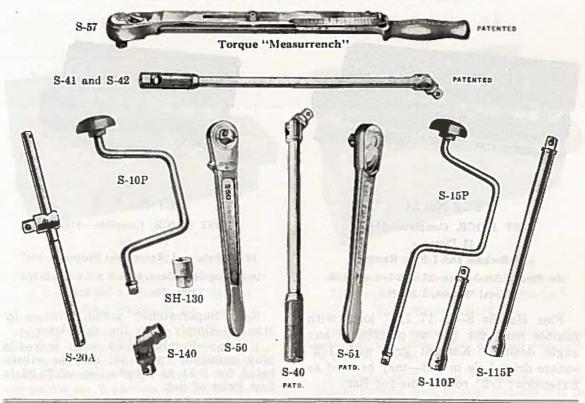


AND DROP-FORGED TOOLS

WILLIAMS'+"SUPERSOCKET" WRENCHES

Chrome-plated over Nickel

STANDARD HANDLES and PARTS-1/2' SQUARE DRIVE



No.	PIECE		No.
S-10P	Speeder—12" long, with plastic revolving grip	\$ 2.70	S-10P
S-15P	Speeder—17-1/2 long, with plastic revolving grip	2.70	S-15P
S-20A S-40	Sliding T Handle—11" long	2.10	S-20A
S-41	end—may be used as Extension	3.90	S-40
	end for use as Extension; 1/2" round cross hole for Bar	4.50	S-41
S-42	Flex Handle only-14-1/2". Flexible head, knurled grip, cross hole for Bar	3.90	S-42
S-42B	Sliding Bar, 7/16" x 9", for Flex Handle S-42	.60	S-42B
S-50	Ratchet-10" long, complete with Locked-in Plug Connector	4.50	S-50
S-51	Reversible Ratchet—10-1/2" long. 24 teeth in Ratchet-gear instead of usual 16. Turning shift-lever reverses action instantly	6.75	S-51
S-57	Torque "Measurrench"—19-1/2" long; indicates R.H. Torque. Has torque—indicating signal. Action reverses instantly for general use. See page 70,	26.00	S-57
S-110P	Extension Bar—5-1/2" long	1.20	S-110P
S-115P	Extension Bar—10-1/2" long.	1.65	S-115P
SH-130	Adapter—1/2" square female and 3/4" square male	1.20	SH-130
S-140	Universal Joint—operating range of approximately 140°	2.70	S-140



SCREW DRIVER SOCKET ATTACHMENTS - 1/2' Square Drive

For use with Standard Pattern Handles and Parts.

No.	Size Blade	List Price	
SB-30	7/64 x 15/16	\$1.02	
SB-40	3/32 x 1-1/4	1.38	



Weights, page J.

⁺ REGISTERED TRADE MARK



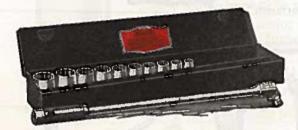
AND DROP-FORGED TOOLS

WILLIAMS' +"SUPERSOCKET" WRENCH SETS

Chrome-plated over Nickel

STANDARD PATTERN-1/2" SQUARE DRIVE

SETS Nos. 21 and 21-R with Straight Wall Sockets



SET No. 21

LIST PRICE, Complete—\$14.70
11 Pieces—

10 Sockets and 1 Flex Handle

In Strong Steel Case, 17 x 2-5/8 x 1-3/4"
Total Weight, 6-3/4 lbs.

Flex Handle S-41, 17 1/4" long, with flexible head for use at practically any angle desired. Knurled grip with 1/2" square drive hole in end—may be used as Extension; 1/2" round hole for Bar.



SET No. 21-R

LIST PRICE, Complete—\$16.45

10 Sockets and Reversible "Superratchet"

In Strong Steel Case, 11-1/2 x 2-5/8 x 1-3/4"
Total Weight, 4-7/8 lbs.

S-51 "Superratchet" action reverses instantly—simply turn the shift-lever.

† Note:—Ratchet S-50 with locked-in plug connector (page 53) may be substituted for S-51 at a reduction of \$2.25 in List Price of Set.

These handy and compact Sets supply at minimum price, assortments that cover a wide variety of work. Convenient, efficient and economical, providing an excellent opportunity to the mechanic to start his Socket Set. Additions to build up a complete assortment can be made at any time. Packed in cartons containing 6 Sets.

CONTENTS OF SET 10 Twelve-Point Sockets Amer. Std. HexHd. Cap Screw; Diam. Screw Amer. Std. HEAVY Nut (U.S.S.) Amer. Std. REGLR Nut; Size Bolt Std. LIGHT Nut (8.A.E.); Size Bolt Nominal Opening Sise Bolt \$.72 .72 .72 1/4 1/4 5/16 3/8 1/4 5/16 3/8 1/4 5/16 19/32 5/16 3/8 7/16 7/16 3/8 .90 .90 .90 7/16 1/2 1/2 5/8 9/16 9/16 1.08 11/16 5/8 ST-1232 3/4 4.50

	10	Twelve	-Point	Socke	ts	
No.	Nominal Opening	Amer Std. HEAVY Nut (U.S.S.); Sise Bolt	Amer. 8td. HexHd. Cap Screw; Diam. Screw	Amer. Std LIGHT Nut (S.A.E.): Size Bolt	Amer. 8td. REGLR. Nut; Size Bolt	List Price Each
ST-1214 ST-1216 ST-1218	7/16 1/2 9/16	1/4	1/4 5/16 3/8	1/4 5/16 3/8	1/4 5/16	\$.72 .72 .72
ST-1219 ST-1220 ST-1222	19/32 5/8 11/16	5/16	7/16	7/16	3/8	.72 .72 .84
ST-1224 ST-1225 ST-1228	3/4 25/32 7/8	7/16 1/2	1/2	1/2 9/16	7/16 9/16	.90 .90
ST-1232	1		3/4	11/16	5/8	1.08

⁺ REGISTERED TRADE MARK



AND DROP-FORGED TOOLS

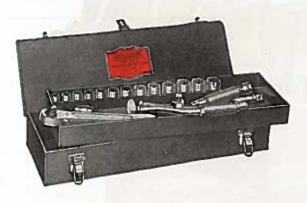
WILLIAMS' +"SUPERSOCKET" WRENCH SETS

Chrome-plated over Nickel

STANDARD PATTERN-1/2' SQUARE DRIVE

For MECHANICS and GENERAL SERVICE

SET No. 20

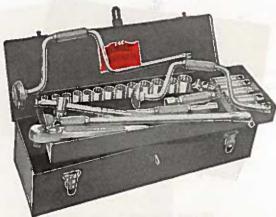


LIST PRICE, Complete-\$42.20 21 Pieces - 13 Sockets and 8 Attachments In Strong Steel Case, 20-1/4x6-1/2x3-3/4" Total Weight, 23 lbs.

This Set is an efficient and economical assortment of 13 Standard Straight Wall "Supersockets" with 12-point openings and 8 Attachments, including Reversible "Superratchet," for garage and general use. It provides excellent service with a minimum number of tools. See table for details.

Set No. 20 (old D20) is a splendid assortment to build on, since other sizes of sockets can be added, when desired, at slight expense.

SET No. 26



LIST PRICE, Complete-\$49.60 26 Pieces - 18 Sockets and 8 Attachments In Strong Steel Case, 20-1/4x6-5/8x4-1/4" Total Weight, 25-1/2 lbs.

The practical mechanic will appreciate this convenient and efficient Set, designed especially for general service.

It includes 18 Standard "Supersockets"; - 13 Regular Straight Wall, 12-point openings 7/16 to 1"; 5 Extra Deep, 12-point openings 11/16 to 1-1/8". These, with 8 Drivers, including Reversible "Superratchet" and Universal Joint, supply the comprehensive selection required in the general run of work. See table for details.

CONTENTS OF SETS

	Straight Wall	LIST F	PRICE
Nominal Opening	Socket No.	In Set No. 20	In Set No. 26
	REGULAR-12-	POINT	
7/16 1/2 9/16 19/32 5/8 11/16 3/4 25/32 13/16 7/8 15/16 31/32	ST-1214 ST-1216 ST-1218 ST-1219 ST-1220 ST-1222 ST-1224 ST-1226 ST-1226 ST-1230 ST-1231 ST-1231	\$.72 .72 .72 .72 .72 .72 .84 .90 .90 .90 .90 .90 1.08 1.08	\$.72 .72 .72 .72 .72 .84 .90 .90 .90 .90 .90 1.08 1.08
	EXTRA DEEP-1	2-POINT	
11/16 13/16 7/8 15/16 1-1/8	SD-1222 SD-1226 SD-1228T SD-1230 SD-1236		1.26 1.26 1.26 1.38 1.68

Handles and Parts							
No	In Sets Nos. 20 and 26	List Price					
S-10P	Speeder-12"-with Revolving Plastic Grip	\$2.70					
S-15P	Speeder-17-1/2"-with Revolving Plastic Grip	2.70					
S-20A	Sliding T Handle—11" long	2.10					
S-41	Flex Handle—17-1/4" long	4.50					
*S-51	Reversible "Superratchet"—10-1/2" long	6.75					
S-110P	Extension-5-1/2"	1.20					
S-115P	Extension—10-1/2"	1.65					
S-140	Universal Joint-approx. operating range 140°	2.70					

*NOTE:—Ratchet No. S-50, with reversible locked-in plug connector (page 53) may be substituted for S-51 at a reduction of \$2.25 in List Price of each Set.

^{*} REGISTERED TRADE MARK



AND DROP-FORGED TOOLS

WILLIAMS' +"SUPERSOCKET" WRENCH SETS

Chrome-plated over Nickel

STANDARD PATTERN-1/2" SQUARE DRIVE

EXTRA CAPACITY

SET No. 30

SET No. 36



"Extra Capacity" Sets Nos. 30 and 36 are all the name implies. They carry a wide assortment of "Supersockets" and attachments, providing comprehensive service for general, all-around work.

LIST PRICE, Complete-\$48.85

29 Pieces — 21 Sockets and 8 Attachments In Strong Steel Case, 20-1/4x6-1/2x3-3/4" Total Weight, 25-1/2 lbs.

SET No. 30 (old D30) contains 21 Standard "Supersockets":—13 Straight Wall, 12-point openings 7/16 to 1" for all popular sizes of U.S., S.A.E., and Amer. Std. Nuts and Cap Screws; 8 Regular, square openings 3/8 to 7/8". Also, 8 Handles and Parts, including Reversible "Superratchet" and Universal Joint.

LIST PRICE, Complete-\$55.85

34 Pieces — 26 Sockets and 8 Attachments In Strong Steel Case, 20-1/4x6-5/8x4-1/4" Total Weight, 27-3/4 lbs.

SET No. 36 contains 26 Standard "Supersockets":—13 Straight Wall, 12-point openings 7/16 to 1" for all popular sizes of U.S., S.A.E., and Amer. Std. Nuts and Cap Screws; 5 Extra Deep, 12-Point openings 11/16 to 1-1/8" for popular spark plugs; 8 Regular, square openings 3/8 to 7/8". Also, 8 Handles and Parts, including Reversible "Superratchet" and Universal Joint.

CONTENTS OF SETS

		Thin '	Wall Soc	kets	410	Handles and Parts	
Nom- inal Openg.	Socket No.	In Set No. 30	LIST	LIST PRICE In Set No. 36		In Sets Nos. 30 and 36	List Price
_	STRAIGH		-12-POINT	-EXTRA DEEP			
7/16 1/2	ST-1214 ST-1216	\$.72	ST-1214 ST-1216	\$.72 72	S-101	Speeder-12"-with Revolving Plastic Grip	\$2.70
9/16 19/32	ST-1218 ST-1219	.72	ST-1218 ST-1219	.72	S-15P	Speeder-17-1/2"-with Revolving Plastic Grip	2.70
5/8 11/16	ST-1220 ST-1222	.72 .84	ST-1220 ST-1222	.72 .84 SD-1222 \$1,26	S-20A	Sliding T Handle—11" long	2,10
3/4	ST-1224 ST-1225	.90	ST-1224 ST-1225	.90	S-41	Flex Handle—17-1/4" long	4.50
25/32 13/16 7/8	ST-1226 ST-1228	.90	ST-1226 ST-1228	.90 SD-1226 1.26 .90 SD-1228T 1.26	*S-51	Reversible "Superratchet"—10-1/2" long	6.75
15/16 31/32	ST-1230 ST-1231	1.08	ST-1230 ST-1231	1.08 SD-1230 1.38	S-110P	Extension—5-1/2"	1.20
1-1/8	ST-1232	1.08	ST-1232	1.08 SD-1236 1.68	S-115P	Extension—10-1/2"	1.65
	_	GULAR-	SQUARE		S-140	Universal Joint-approx. operating range 140°	2.70
3/8 7/16 1/2 9/16 5/8 11/16 3/4 7/8	S-412 S-414 S-416 S-418 S-420 S-422 S-424 S-428	.72 .72 .72 .72 .72 .72 .84 .90	S-412 S-414 S-416 S-418 S-420 S-422 S-424 S-428	. 72 . 72 . 72 . 72 . 72 . 72 	plug c	E:—Ratchet No. S-50, with reversible loconnector (page 53), may be substituted a reduction of \$2.25 in List Price eac	ed fo

+ REGISTERED TRADE MARK

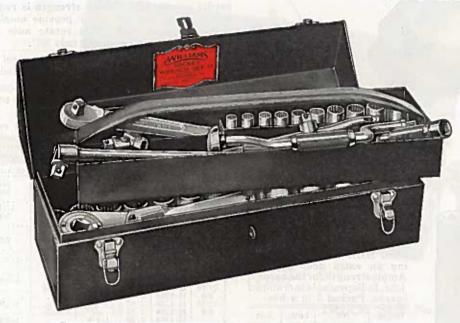


AND DROP-FORGED TOOLS

WILLIAMS' +"SUPERSOCKET" WRENCH SETS Chrome-plated over Nickel

MASTER MECHANICS' SET No. 55

STANDARD PATTERN 1/2 SQUARE DRIVE HEAVY DUTY PATTERN 3/4" SQUARE DRIVE



SET No. 55—LIST PRICE, Complete as shown—\$87.85

In Strong Steel Case, 20-1/2 x 6-3/4 x 6-3/4"
Total Weight, 43-1/2 lbs.

SET No. 55-A-LIST PRICE-\$83.35

Same as Set 55 but without Flex Handle S-41

Set No. 55 will be furnished, unless otherwise specified

This combination of "Standard" and "Heavy Duty" Socket Wrenches is especially adapted to industrial work and it is the ideal Millwrights' Set. Extremely useful for the set-up and maintenance of all machinery. Twenty-one 12-point Sockets for all U.S. Std. nuts, 1/4 to 1", cap screws 1/4 to 1-1/8", S.A.E. Std. nuts and cap screws 1/4 to 1-1/8", and Amer. Std. regular and

jam nuts 1/4 to 1"; with two complete lines of 13 Handles and Parts—Standard pattern for Sockets up to 1" hex and Heavy Duty pattern for the larger sizes. The great variety of handle styles provides all desirable Socket Wrench combinations.

If wanted, Square Sockets may be obtained at slight expense.

12-point Sockets - CONTENTS OF SET - Handles and Parts

Standard Pattern			Hear	vy Duty Pr	ittern	No.	Piece	List Price
Nominal Opening	No.	List Price	Nominal Opening	No.	List Price	S-10P	STANDARD PATTERN Speeder—12"—with Revolving Plastic Grip	
7/16 1/2 9/16	ST-1214 ST-1216 ST-1218	\$.72 .72 .72	1-1/16 1-1/8	H-1234 H-1236	\$1.32 1.38	S-15P S-20A *S-41 †S-51	Speeder—17-1/2"—with Rev. Plastic Grip. Sliding T Handle—11" Long. Flex Handle—17-1/4" Long. Reversible "Superratchet"—10-1/2" Long.	2.70 2.10 4.50 6.75
19/32 5/8 11/16	ST-1219 ST-1220 ST-1222	.72 .72 .84	1-1/4 1-5/16	H-1240 H-1242	1.56 1.56	S-110P S-115P S-140	Extension—5-1/2". Extension—10-1/2". Universal Joint; approx. operating range 140°	1.20 1.65 2.70
3/4 25/32 13/16 7/8	ST-1224 ST-1225 ST-1226 ST-1228	.90 .90 .90	1-3/8 1-7/16	H-1244 H-1246	1.56	11-20A 11-50 11-110	HEAVY DUTY PATTERN Sliding T Handle—17-1/2" Long Ratchet—18-1/2", with Plug-Connector Extension—8" Long	3.30 10.50 2.70
15/16 31/32 1	ST-1230 ST-1231 ST-1232	1.08 1.08 1.08	1-1/2 1-5/8	H-1248 H-1252	1.86	H-115 H-140	Extension—15-1/2* Long Universal Joint; approx. operating range 140° C:—Fiex Handle 8-41 omitted from Set 55-A.	3.30 7.50

[†] S-50 Ratchet (page 53) may be substituted for S-51 at a reduction of \$2.25 List Price for Set. + REGISTERED TRADE MARK

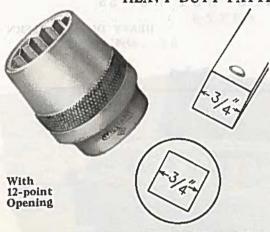
WILLIAMS TOTAL DROP-FORED TOUT

AND DROP-FORGED TOOLS

WILLIAMS' +"SUPERSOCKET" WRENCHES

Chrome-plated over Nickel

HEAVY DUTY PATTERN-3/4" SQUARE DRIVE



SOCKETS

Williams' Heavy Duty Sockets are designed for harder service where more strength is required than on the every-day job. They provide ample strength without clumsy bulk. Will rotate nuts completely where handle can be swung only 30°.

Made from superior high tensile steel and heattreated in electric furnaces. Sockets packed 2 in a box.

To use "Heavy Duty" Sockets (3/4" square female drive) with "Standard" Handles (1/2" square male drive), use Adapter SH-180, page 58.

Whitworth Std. sizes also; details on request.



EXTRA DEEP HEAVY DUTY SOCKETS

Specially designed for U-bolt nuts on Buses and Trucks and other HEAVY service requiring an extra deep opening. Amplestrength for the hardest jobs. Indispensable in cramped spaces. Packed 3 in a box.

Openg.	No.	Lgth.	List
15/16	HD-1230	3-1/4	\$1.62
1-1/16	HD-1234	3-1/4	1.86
1-1/4	IID-1240	3-1/4	2.28
1-7/16	HD-1246	3-1/2	2.52

Size Open- ing	No.	List Price, Each	Amer.Std. HEAVY Nut (U.S.S.)	Amer.Std Hex Hd. Cap Screw	Amer,8td, LIGHT Nut (8.A.E.)	Amer.Std. REGULAR Nut
* 7/8 15/16 * 31/32 1 - 1/16 1 - 1/8 1 - 3/16 1 - 1/4 1 - 5/16 1 - 1/2 1 - 5/8 1 - 11/16 1 - 1/2 1 - 5/8 1 - 11/16 1 - 3/4 1 - 3/4 1 - 3/4 1 - 3/4 1 - 13/16 2 - 1/8 * 2 - 1/16 * 2 - 1/8	H-1228 H-1230 H-1231 H-1232 H-1234 H-1234 H-1236 H-1240 H-1242 H-1244 H-1248 H-1252 H-1252 H-1258 H-1258 H-1258 H-1258 H-1258 H-1258 H-1258 H-1258 H-1264 H-1264 H-1264	\$1.08 1.08 1.08 1.38 1.38 1.56 1.56 1.56 1.86 1.86 1.86 1.86 1.86 1.86 1.86 1.8	1/2 9/16 5/8 3/4 7/8 1 1-1/8	5/8 3/4 7/8 1 1-1/8 1-1/4	9/16 5/8 11/16 3/4 7/8 1 1-1/8 1-1/4 1-3/8	9/16 5/8 3/4 7/8 1 1-1/8 1-1/4 1-3/8
* 2- 3/16 * 2- 1/4	H-1270 H-1272	5.30	1-3/8	********	1-1/2	1-1/2

For Extra Deep Standard Sockets (1/2" square drive) see page 52.

HANDLES and PARTS



Weights, pages J and K.

+ REGISTERED TRADE MARK

Page 58-A

*Discontinued—will supply until stock is exhausted.



AND DROP-FORGED TOOLS

WILLIAMS' +"SUPERSOCKET" WRENCH SETS

Chrome-plated over Nickel

HEAVY DUTY PATTERN — 3/4" Square Drive

SETS NOS 50 AND 51



In Strong Steel Case 19-3/4 x 5-1/4 x 2-3/4"

SET No. 50

LIST PRICE, Complete — \$48.54

15 Pieces—10 Sockets and 5 Attachments
Total Weight, 28-3/4 lbs.

TRUCK SET No. 51

LIST PRICE, Complete - \$30.54

13 Pieces-10 Sockets and 3 Attachments
Total Weight, 22-1/4 lbs.

For severe service requiring tools of trim design, yet of ample strength, these Heavy Duty Sets are unusually handy, efficient and economical.

Ten Sockets with 12-point openings from 1-1/16 to 1-3/4", care for all U. S. Std. Nuts 5/8 to 1"; Hex Cap Screw 7/8 to 1-1/8"; all S. A. E. Std. Nuts 3/4 to 1-1/8; all Amer. Std. Regular and Jam Nuts 3/4 to 1"; Light and Castle Nuts 3/4 to 1-1/8".

The Handles and Parts are easily connected with the Sockets (and as readily disconnected), but are held firmly against unintentional displacement.

† Set No. 51 is same in all respects as Set No. 50, excepting that it does not include Ratchet H-50 and Universal Joint H-140—see table below.

CONTENTS OF SETS

	10 T	welve-point	Sockets li	n Sets 50 a	and 51		5 Handles and Parts in Set 50			
Size Open- ing	No.	Amer. Std. HEAVY Nut (U.S.S.)	Amer. Std. Hex Head Cap Screw	Amer.Std. LIGHT Nut (S.A.E.)	Amer Std. REGULAR Nut	List Price, Ench	No.	PIECES	List Price, Each	
-1/16 -1/8	H-1234 H-1236	5/8	7/8	3/4	3/4	\$1.32	H-20A	Sliding T Handle—17-1/2" long	\$3.30	
-3/16 -1/4	H-1238	3/4		7/8		1.38 1.38 1.56	†E2-50	Ratchet—18-1/2"—Complete with Plug-Connector	10.50	
1-5/16 1-3/8	H-1242 H-1244		1		7/8	1.56 1.56	H-110	Extension—8" long	2.70	
1-7/16 1-1/2	H-1246 H-1248	7/8	1-1/8	1		1.86 1.86	H-115	Extension-15-1/2" long	3.30	
1-5/8 1-3/4	H-1252 H-1256	1		1-1/8		2.16	†H-140	Universal Joint—approximate operating range 140°.	7.50	

⁺ REGISTERED TRADE MARK

AND DROP-FORGED TOOLS

WILLIAMS'+"SUPERSOCKET" WRENCHES

Chrome-plated over Nickel

EXTRA HEAVY DUTY PATTERN 1' SQUARE DRIVE

SOCKETS



With 12-Point Opening

Williams' Extra Heavy Duty Sockets provide sturdy, rugged strength for the hardest kind of service. In addition to the 1" square drive opening in their base, they are cross-drilled to receive the Sliding Handle which is thus brought close to the work. This minimizes the tendency to tip when the socket is used near the end of the handle. Will rotate nuts completely where the handle can be swung only 30°.

Another feature is the "Lock-Socket" device which provides a positive lock between the sockets and attachments. To release the "Lock-Socket" simply press the button on the socket and pull. This device eliminates all danger of sockets becoming detached in service.

Made from a superior grade of high tensile steel and heattreated in electric furnaces for maximum strength.

Sockets Nos. NX-1234 to NX-1248 packed 2 in a box. All others, 1 in a box.

List

Nom- inal Open- ing	No.					List Price, Each	Nom- inal Open- ing	No.	Amer. Std. HEAVY Nut (U.S.S.); Size Bolt	Amer. Std. LIGHT Nut (S.A.E.); Size Bolt	List Price, Each
	NX-1234 NX-1236	5/8	7/8	3/4	3/4	\$1.80 1.80		NX-1258 NX-1264		1-1/4 1-3/8	\$ 4.20 4.80
1-3/8 1-7/16	NX-1240 NX-1244 NX-1246 NX-1248	3/4	1-1/8	7/8	1	1.98 2.10 2.22 2.70		NX-1270 NX-1276 NX-1280 *NX-682	1-1/2	1-1/2	6.30 7.50 10.50 12.00
1-5/8	NX-1252	1		1-1/8		3.00		*NX-688	1-3/8		16.50

* These 2 Sockets have 6-point opening, short neck, no cross-hole.

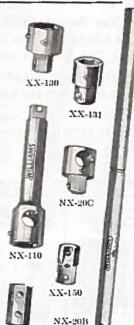
Note:—To use "Extra Heavy Duty" Sockets (1" square female drive) with "Heavy Duty" Handles (3/4" square female drive) male drive), use Adapter HNX-130; pages 58 and 64.

HANDLES and PARTS



No.	Piece	Price, Each
NX-20B	Sliding Handle—1" diam., 20" long.	\$ 2.10
NX-20C	Adapter—for Sliding Handle NX-20B	3.00
NX-50	Ratchet—20-1/2" long—Complete with Plug-Connector XX-150	16.20
NX-110	Extension Bar—9" long	5.25
NX-115	Extension Bar-18" long	6.40
X-150	Ratchet Plug-Connector-1' hex	1.68
XX-130	Adapter—1" square Female and 1" hex Male	3.30
XX-131	Adapter—1" hex Female and 1" square Male	3.30
XX-150	Adapter—1" square Male and 1" hex Male	2.70
NX-50		X-150

Weights, pages J and K. * REGISTERED TRADE MARK



11 42



AND DROP-FORGED TOOLS

WILLIAMS' +"SUPERSOCKET" WRENCH SETS

Chrome-plated over Nickel

EXTRA HEAVY DUTY PATTERN

1" SQUARE DRIVE

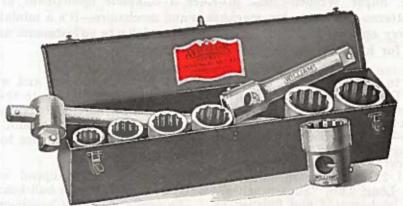
SET No. 76



LIST PRICE, Complete—16 Pieces—\$77.00
In Strong Steel Case, 21-1/4 x 7-1/8 x 4-5/8" — Total Weight 58 lbs.

Excellent for Bus and Truck Service
11 Sockets, 12-point openings 1-1/16, 1-1/8, 1-1/4, 1-3/8, 1-7/16,
1-1/2, 1-5/8, 1-13/16, 2, 2-3/16 and 2-3/8".
5 Accessories, Nos. NX-20B, NX-20C, NX-50, NX-110 and NX-115

SET No. 81



LIST PRICE, Complete-10 Pieces-\$44.25

In Strong Steel Case, 21 x 4-3/8 x 4-1/4" Total Weight, 32 lbs.

7 Sockets, openings 1-1/4, 1-7/16, 1-5/8, 1-13/16, 2, 2-3/16 and 2-3/8".
3 Accessories, Nos. NX-20B, NX-20C and NX-110.
A compact Set suitable where range of work required is more restricted.

+ REGISTERED TRADE MARK

WILLIAMS' SUPER WRENCH-CHEST No. 1001-A

"The Complete Tool Room"



LIST PRICE, Complete—\$152.50
83 Pieces—44 Sockets, 39 Handles and Wrenches
In Strong Steel Case, 23 x 10-1/4 x 10"
Total Weight, 69 lbs.

Williams' Super Wrench-Chest provides a complete assortment of wrenches in numerous patterns and sizes for machinists and mechanics—it's a miniature tool room in itself. Every opening required, from 3/16", for delicate adjustments and fussy jobs, up to 1-5/8" for heavy work, requiring tools of rugged strength.

In addition to Midget, Bantam, Standard and Heavy Duty "Supersockets", with their Handles and Parts, there are 8 12-point Box "Superrenches" (Chrome-Molybdenum)—3 short double offset and 5 long 15° angle—with 12-point openings, 2 "Superpliers" Midget, 4-1/2" long—Standard—9-1/2"), a Hammerhead Screwdriver and 6 Long Thin "Superrenches". All tools are heat-treated and finished in chrome-plate, excepting "Superpliers".

The case and tray are of extra heavy metal, thoroughly reinforced at the corners. Continuous, full length "piano" hinges on both cover and "front door". The latter is deep and wide, providing complete accessibility to the bottom compartment. Individual tools can be readily located. The Chest is built to last a lifetime and is of ample size to accommodate additional tools.

The case is equipped with four ball casters, fitted with ball bearings, and can be easily rolled on bench or floor. It can also be carried comfortably, without disarranging the tools, by means of the strong metal "tote" handle on the top. A strong padlock with individual, duplicate keys is furnished.

(Contents listed on following page)

WILLIAMS' SUPER WRENCH-CHEST No. 1001-A

"The Complete Tool Room"

(Continued)

CONTENTS OF CHEST-"SUPERSOCKETS" and "SUPERRENCHES"

Nominal Opening	No.	Amer. Std.	Amer. Std.	Amer. Std.	Amor	List		SOCKET PARTS and WRENCHES	_
MIDG		Nut	Hez Hd. Cap	LIGHT Nut	REGULAR	Price	No.	Piece	List Price
MIDG		(U.S.S.)		(S.A.E.)		4-1		MIDGET PATTERN-1/4" Sq. Drive	
			-Straig	ht Wal	1-1/4" Sc		NM-20A	Sliding T Handle—4-1/2" long	\$1.02
3/16	Stgt. Wall NM-606			161	Mch. Scr. No. 2 & 3		NM-110	Extension—Driver, 5-3/8", with revolv-	
7/32	NM-607				110.200	.45		ing, lockable Grip	1.44
1/4	NM-608				4	.45	E	BANTAM PATTERN-3/8" Sq. Drive	
9/32	NM-609				******	.45	F-15	Speeder-16-1/2" long, with knurled,	
12-Pt. 5/16	NM-1210	1/8	1/8		5 & 6	.45		revolving Grip	2.10
	NM-1211				8	.45	B-20A B-40	Sliding T Handle—6-1/2" long	1.35
3/8	NM-1212		3/16	227.5	10	.45	D-40	Knurled Grip with 3/8" square drive	
	NM-1214		1/4	1/4	12 & 1/4	.45		hole in end—for use as Extension	2.70
		ERN-	-Straig	ht Wa	11-3/8" Se	ı. Dr.	B-51	REVERSIBLE Ratchet, 6-1/2" long	4.50
	Stgt. Wall		0110		437 40		B-110 B-115	Extension Bar—5-3/4" long Extension Bar—10-1/2" long	1.08
3/8 7/16	B-1212 B-1214		3/16 1/4	1/4	*No. 10	.72 .72	B-140	Universal Joint.	1,20
1/2	B-1216	1/4	5/16	5/16	1/4	.72			
9/16	B-1218		3/8	3/8	5/16	.72	S1	TANDARD PATTERN-1/2" Sq. Drive	
5/8	B-1220	2.0	7/16	7/16	3/8	.72	S-10P	Speeder-12" long, with "door knob"	
11/16 3/4	B-1222 B-1224	3/8	1/2	1/2	7/16	.84	S-15P	revolving Plastic Grip	2.70
U/I	10-1221		1/2	1 1/2	*Mch. Sci		3-131	knob" revolving Plastic Grip	2.70
5	TANDAR	D PAT	TERN	-1/2"	Sq. Drive	. 1440	S-20A	Sliding T Handle—11" long	2.10
	Stgt. Wall			1			S-41	Extra Long Flex Handle—17"—flexible	
7/16	ST-1214		1/4	1/4	1/4	.72		head. Knurled Grip with 1/2" square	
1/2	ST-1216	1/4	5/16	5/16	*******	.72		drive hole in end, for use as Extension; also 1/2" round hole for Bar	4.50
9/16 19/32	ST-1218 ST-1219	5/16	3/8	3/8	5/16	.72 .72	S-51	REVERSIBLE Ratchet, 10-1/2" long	6.75
5/8	ST-1220		7/16	7/16	3/8	.72	S-110P	Extension Bar — 5-1/2" long	1.20
11/16	ST-1222	3/8				.84	S-115P S-140	Universal Joint	1.65
3/4 25/32	ST-1224	7/16	1/2	1/2	7/16	.90	9-140	Oniversal Joint	2.70
13/16	ST-1225 ST-1226	7/16	9/16		1/2	.90 .90	HEA	AVY DUTY PATTERN-3/4" Sq. Drive	e
7/8	ST-1228	1/2	5/8	9/16	9/16	.90	H-20A		3.30
15/16	ST-1230			5/8		1.08	H-50	Ratchet, Complete—18-1/2" long	10.50
31/32	ST-1231 ST-1232	9/16	3/4	11/18	5/8	1.08	H-110 H-115	Extension Bar—8" long Extension Bar—15-1/2" long	2.70
•	Extra		9/4	11/16	9/8	1.08	H-140	Universal Joint	3.30 7.50
	Deep				DESIGNATION OF				,,,,,
13/16	SD-1226		9/16		1/2	1.26		LONG THIN "SUPERRENCHES"	-111
7/8	SD-1228T SD-1232			5/8		1.26 1.50	1090D	Openings 1/2 & 9/16"—8" long{	.76
1-1/8	SD-1236		7/8	0/0	3/4	1.68	1090D 1092F	{	.76
11.11	Taper				Square		1092F	Openings 5/8 & 11/16"—8" long	.82
quare	Nose				eduare		1094	Openings 3/4 & 7/8"—9" long	.88
1/2	S-416					.72	1094	Permission of the 1/0 -5 long	-88
9/16	S-418				9/16	.72	1	2-POINT BOX "SUPERRENCHES"	2011
Width Blade	Socket Bit		111		1 100		7723		
15/16	SB-30					1.02	7025	3/8 & 7/16— 7-3/8" 1/2 & 19/32— 8-1/4" 15° Angle	1.00
1-1/4	SB-40					1.38	7727	9/16 & 5/8 — 9-1/4" Offset,	1.05
H	EAVY DU	TY PA	TTER	N-3/4	" Sq. Driv	e	7731A	3/4 & 7/8 —12" Long Pattern	1.40
12-Pt.	Taper	- Au-					7033C 9723	15/16 & 1	1.85
	H-1234	5/8	7.0	3/4		1.32	9725	7/16 & 1/9 _ 5-1/9" Double Unset	1.00
1-1/16	H-1236		7/8	7/8	3/4	1.38	9727	9/16 & 5/8 — 6" Short Pattern	1.10
1-1/8		3/4				1	1	Transport of the state of the s	
1-1/8 1-1/4	H-1240	3/4	1		7/8		B 7 1 1 1 1 1		
1-1/8 1-1/4 1-5/16 1-3/8	H-1240 H-1242 H-1244	1	1		7/8	1.56 1.56	CALL	"SUPERPLIERS," ETC.	
1-1/8	H-1240 H-1242		1		7/8	1.56	1519 1520	"SUPERPLIERS," ETC. Midget, 4-1/2"; 4-position slip-joint plier Standard, 9-1/2"; 8-position slip-joint.	1.85

WILLIAMS' +"SUPERSOCKET" WRENCHES

Chrome-plated over Nickel

ADAPTERS-FOR "SUPERSOCKETS", HANDLES AND PARTS

















MM-130 MM-131

BM-130 BS-130 BS-131 SH-130

HNX-130 HX-130

XX-130

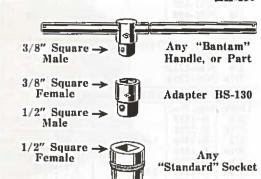
XX-131

XX-150

MM-150 HH-150

Williams' Adapters provide for the use of Sockets of one pattern with Handles and Parts of another pattern. See illustration at right showing, for instance, how Adapter BS-130 permits use of "Bantam" Handles (3/8" square male drive) with "Standard" Sockets (1/2" square female drive).

Finished in chrome-plate over nickel.



No.	ADAPTER	PRICE	No.
MM-130	1/4" square male and 9/32" square female. Adapts Sockets with 1/4" square drive-opening to Handles with 9/32" square drive-plug	\$.90	MM-130
MM-131	9/32" square male and 1/4" square female. Adapts Sockets with 9/32" square drive-opening to Handles with 1/4" square drive-plug	.90	MM-131
MM-159	9/32" square male and 1/4" square male. Adapts Sockets with 9/32" square drive- opening to Ratchet with 1/4" square female drive; also, Ratchets with 9/32" square drive-opening to Sockets with 1/4" square female drive	.60	MM-150
BM-130	9/32" square male and 3/8" square female. Adapts "Bantam" Handles and Parts (3/8" square male drive) to "Midget" Sockets (9/32" square drive-opening)	.90	BM-130
BS-130	1/2" square male and 3/8" square female. Adapts "Bantam" Handles and Parts (3/8" square male drive) to "Standard" Sockets (1/2" square drive-opening)	1.02	BS-130
BS-131	3/8" square male and 1/2" square female. Adapts "Bantam" Sockets (3/8" square drive-opening) to "Standard" Handles and Parts (1/2" square male drive)	1.02	BS-131
SH-130	3/4" square male and 1/2" square female. Adapts "Standard" Handles and Parts (1/2" square male drive) to "Heavy Duty" Sockets (3/4" square female drive).	1.20	SH-130
HX-130	1" hex male and 3/4" square female. Adapts "Heavy Duty" Handles and Parts (3/4" square male drive) to Sockets with 1" hex female drive	1.50	HX-130
HNX-130	1" square male and 3/4" square female. Adapts "Heavy Duty" Handles and Parts (3/4" square male drive) to "Extra Heavy Duty" Sockets (1" square drive-opening)	1.50	HNX-130
XX-130	1" hex male and 1" square female. Adapts Sockets 1" hex drive-opening to Handles and Parts with 1" square male drive	3.30	XX-130
XX-131	1" hex female and 1" square male. Adapts Sockets 1" square drive-opening to Handles and Parts with 1" hex male drive	3.30	XX-131
HH-150	5/8" square male and 3/4" square male. Adapts Sockets with 5/8" square drive- opening to Ratchets with 3/4" square drive; also, Ratchets with 5/8" square drive to Sockets with 3/4" square drive-opening	1.50	HH-150
XX-150	1" square male and 1" hex male. Adapts Sockets with 1" square drive-opening to Ratchets with 1" hex male drive; also, Ratchets with 1" square drive to Sockets, 1" hex drive-opening.	2.70	XX-150



AND DROP-FORGED TOOLS

WILLIAMS' +"SUPERSOCKET" WRENCHES Chrome-plated over Nickel

FOR REFRIGERATION SERVICE

LIST PRICE Complete, \$18.50 19 Pieces

In Strong Steel Case 7-3/4 x 3-3/8 x 1-1/4" Total Weight, 2-3/4 lbs.

This handy, compact assortment of "Supersocket" Wrenches has been carefully selected for servicing and repairing all makes of Electric Refrigerators. 14 slim, straight-wall Chrome-Alloy Sockets and 5 Accessories, including a specially designed Reversible Ratchet, described in table below; heat-treated and chrome-plated.

For Refrigeration Wheel Puller See Page 73





M-406 to M-812

†Midget "Supersockets" 9/32" Square Drive

No.	Square	Dian	List	
140,	Opening	Nose	Base	Price
M-406 M-407 M-408 M-810 M-812	3/16 7/32 1/4 *5/16 *3/8	7/16 15/82 1/2 9/16	1/2 1/2 1/2 1/2 9/16 11/16	\$.45 .45 .45 .45
M-812	*3/8 /8" long,	11/16		16

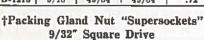
Kerotest Valve Packing Nut Socket 9/32" Square Drive

No.	Oval	Extre	List	
	Opening	Diam.	Length	Price
MR-15	1/2 x 3/8	5/8	1-1/2	\$1,00

CONTENTS OF SET

Bantam "Supersockets" 3/8" Square Drive

No.	12-Point	Dian	List		
110.	Opening	Nose	Base	Price	
B-1214 B-1216 B-1218	7/16 1/2 9/16	39/64 11/16 49/64	21/32 11/16 49/64	\$.72 .72 .72	



	Size P	rongs	Diaz	List	
No.	Depth	Width	Inside	Outside	Price
MR-2 MR-4 MR-6 MR-8 MR-10	3/32 3/32 3/32 1/8 3/32	5/64 1/8 7/64 1/8 5/64	21/64 21/64 21/64 29/64 9/16	7/16 15/32 9/16 11/16 13/16	\$.75 .75 .75 .75



MR-2 to

HANDLES AND PARTS

No.	Piece	List	No.	Piece	List
B-51A	Reversible "Superratchet"—6-1/2" long. Ratchet drives in head, 3/8"sq. male and 1/4" sq. female. Also, in end of handle, 3/16 and 1/4" sq. openings for delicate adjustment of valves. 24 teeth in ratchet-genr instead of usual 14 or 16. Turning Shift-lever reverses action instantly.	\$4.50	M-20A B-110 M-115 MM-150	Sliding T Handle—4-1/2" long; 9/32" square male drive. Extension—5-1/2" long; 3/8" square drive, male and female. Extension—6" long; 9/32" square drive, male and female. Plug Adapter—1" long; 1/4" square and 9/32" square.	\$1.02 1.08 1.08

For Additional Refrigeration Wrenches see page 45.

REGISTERED TRADE MARK

For Refrigeration Wheel Puller see page 73.

WILLIAMS' +"SURERSOCKET" WRENCHES

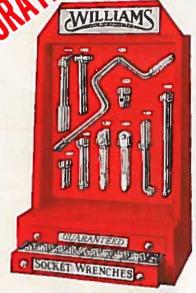
Chrome plated over Nickel

ATTAM ATTURN-3/8" Square Drive

DISPLAY CABINET No. 300

OISCON!

Assortment
contains
56 Sockets
34 Accessories
Total Weight, 44 lbs.



Extreme
Size of Cabinet
26 3/4" high
15 1/2" wide
10" deep

LIST PRICE—Complete \$114.30

This attractive "Silent Salesman" adds to your sales force, but not to your payroll. It is made of heavy metal and is sturdier and more durable than ordinary cabinets.

"Bantam" Straight Wall 12-point Sockets, 1/4 to 3/4" openings, with a wide variety of Handles and Parts, care for all needs in 3/8" square drive Socket Wrench combinations. Each compartment in the drawers is labeled to show the sizes of Sockets it contains. A convenient, efficient aid to increased sales at minimum cost.

Straight Wall Sockets - CONTENTS OF CABINET - Handles and Parts

Size		Oues	Amer. Std. HEAVY	Amer. Std. Hex Hd.	Amer. Std. LIGHT	Amer. Std. REGLR.	No.	Piece	Quan- tity
Open- ing	No.	Quan- tity	Nut (U.S.S.), Size Bolt	Cap Screw; Diam, Screw	Nut (S.A.E.); Sizo Bolt		F-15 B-20A	Speeder—16 1/2" long, with knurled revolving grip. Sliding T Handle—6 1/2" long	3
‡1/4	B- 608	6				†No. 4	B-30 B-40	Offset Handle—7 3/4" long	3
5/16	B-1210	6	1/8	1/8		†5 & 6		head, knurled grip with 3/8" drive-	3
11/32	B-1211	6				†8	B-50	Ratchet-6 1/2" long	2
3/8	B-1212	6		3/16		†10	B-51	REVERSIBLE Ratchet—6 1/2" long. 24 teeth in Ratchet-gear instead of	
7/16	B-1214	6		1/4	1/4	1/4		usual 16	2
1/2	B-1216	6	1/4	5/16	5/16		B-108 B-110	Extension Bar—3" long Extension Bar—5 3/4" long	3 3
9/16	B-1218	6		3/8	3/8	5/16	B-115	Extension Bar-10 1/4" long	3
5/8	B-1220	6		7/16	7/16	3/8	BS-130	Adapter—3/8" square Female, 1/2" square Male	3
11/16	B-1222	4	3/8				BS-131	Adapter-3/8" square Male: 1/2"	1
3/4	B-1224	4		1/2	1/2	7/16	B-140	square Female	3

t With Hex Opening.

(For Bantam "Supersockets" and Parts, see page 50)

11 42

[†] Machine Screw Nuts.

⁺ REGISTERED TRADE MARK

WILLIAMS' +"SUPERSOCKET WRENCHES

Chrome-plated over Nokel
STANDARD PATTERN--1727 Shade Driv

DISPLAY CABINET No. 600



Extreme
Size of Cabinet
33 3/4" high
20 1/2" wide
11" deep

WRATION"

Assortment contains 144 Sockets 35 Accessories Total Weight 130 lbs.

LIST PRICE—Complete \$243.30

This Cabinet is a miniature store in itself, providing most attractive display as well as handy storage for Williams' Socket Wrenches. The assortment includes Regular, Straight Wall and Extra Deep 12-point Sockets 7/16 to 1 1/4" and Square Sockets 5/16 to 1"—a sufficient spread to cover practically all popular needs. The variety of Handles and Parts provides wide selection in the type of Socket Wrench combination desired.

Made of heavy metal that will hold its shape—much better quality than ordinary cabinets. Each compartment in the drawers is labeled showing the size of Sockets in same.

Sockets - CONTENTS OF CABINET - Handles and Parts

Size	Straight \ 12-Poir	Vall it	Extra De 12-Poir		Squ	аге	No.	Piece	Quan tity
Opening	No.	Quan- tity	No.	Quan-	No.	Quan- tity	S-10 S-15	Short Speeder—14 1/2". Knurled revolving grip Long Speeder—17 1/2". Knurled revolving grip	2 2
5/16 3/8 7/16 1/2	ST-1214	6			S-410 S-412 S-414	3 3	S-20A S-40	Sliding T Handle—11". Flex Handle—12" long; flexible head. Knurled grip with 1/2" square drive hole in end—may be used	3
9/16 19/32	ST-1216 ST-1218 ST-1219	8 8	SD-1216 SD-1218	i	S-416 S-418	3 3	S-41	as Extension Flex Handle—17 1/4" long. Similar to S-40, but has 1/2" round cross hole in grip for bar.	3
5/8 21/32	ST-1220 ST-1221	8 4	SD-1220	ï	S-420	2	S-50	Ratchet—10" long, complete with Locked-in Plug- Connector	1
11/16 3/4 25/32	ST-1222 ST-1224	8	SD-1222 SD-1224	1	S-422 S-424	2 2	S-51	REVERSIBLE Ratchet—10 1/2" long, 24 teeth in Ratchet-gear instead of usual 16. Turning Shift-lever reverses action instantly.	2
13/16	ST-1225 ST-1226 ST-1228	6	SD-1226 SD-1228	2	S-428	2	S-110P S-115P	Short Extension—5 1/2" long	3 3
7/8 7/8 15/16	ST-1230	6	SD-1228T SD-1230	1		::::	S-140 SB-30 SB-40	Universal Joint. Drag-Link Socket Bit—Size Blade, 7/32 x 15/16*. Drag-Link Socket Bit—Size Blade, 3/16 x 1 1/4*.	2 2
1/16	ST-1231 ST-1232 *S-1234	6 6 3	SD-1232	2	S-432	2	BS-130 BS-131	Adapter—3/8" sq. female and 1/2" square male Adapter—3/8" sq. male and 1/2" sq. female	2 2
1/8 3/16	*S-1236 *S-1238	3	SD-1236	2			SH-130	Adapts "Standard" Handles and Parts to	199
1/4	* S-1240	3						"Heavy Duty" Sockets	2

* Sockets with Taper Nose.

(For Standard "Supersockets" and Parts, see pages 52 and 53)

+ REGISTERED TRADE MARK

DISPLAY STAND

FOR

WILLIAMS' +"SUPERSOCKET" WRENCH SETS



Every "SUPERSOCKET" and Accessory is Fully Guaranteed

This compact stand 30" wide and 60" high, provides a most attractive and convenient means of displaying the most popular Williams' "Supersocket" Sets.

A convenient rack for holding literature describing them is provided on the back of the panel at the top.

The stand, mounted on casters, is made entirely of metal, enameled in orange. The panel at the top is lettered in black and gold. The rich orange of the stand makes a pleasing contrast to the dark gray of the boxes with their labels in gold, black and orange.

This display is a real "Silent Salesman"—dealers find it a very efficient aid. It is loaned only for the display of Williams' "Supersocket" Sets.

+ REGISTERED TRADE MARK

WILLIAMS

AND DROP-FORGED TOOLS

WILLIAMS' +"SUPERSOCKET" WRENCHES

Chrome-plated over Nickel

IMPROVED WRENCH SETS FOR HOLLOW-SCREWS SET No. AL-100

This Set of Williams' detachable "Supersocket" Bits and Parts provides especially efficient wrenches for all popular hollow (hex socket) set screws and cap screws; see table.

Replacing old type L-shape wrenches, bent from hex bar steel, these tools provide all the advantages of the Detachable Socket Wrench system for users of Hollow-Screws.

Detachable "Bits," with projecting hex plug, are substituted for conventional detachable sockets. Only Williams' Bits have knurled end for fast spinning of screws before tightening them with handle, or driver.



LIST PRICE, Complete—19 Pieces—\$25.00 In Fitted Steel Case, 13 x 7-1/2 x 1-3/4" Total Weight, 10 lbs.

Flex Handle M-42 supplies all the convenience and advantages of a handle with flexible head. With Bar inserted it becomes a Sliding T Handle, with long shank for reaching buried screws.

"Superratchets" B-51 and S-51, instantly reversible, are rugged, drop-forged tools without delicate springs, or other fragile construction. Operate in one-third less space than conventional ratchets.

Bits and Parts, made from alloy steel, are heat-treated in electric furnaces. They interchange in Williams' regular Bantam and Standard "Supersocket" lines.

CONTENTS OF SET No. AL-100

-	10 "SUPERSOCKET" BITS						9 HANDLES and PARTS	LIST
Bit	Hex.	Sq.	LIST	For Hollo	w Screws	B-20A	Sliding T Handle-6-1/2" long	\$1.35
No.	Plug, Size	Drive	PRICE	Set Screw	Cap Screw	B-51	Reversible "Superratchet"-6-1/2".	
AM-604 AM-605	1/8 5/32	9/32	\$.60 .60	1/4 5/16	No. 8 10 & 12	B-110 BM-130	Reverses instantly Extension—5-1/2" long Adapter—3/8" Square Female and	1.08
AM-606 AM-607	3/16 7/32	9/32	.60	3/8 7/16	1/4 5/16	M-42	9/32" Square Male Flex Handle only—5-1/2" long; flexible head, knurled grip, cross	.90
AB-608 AB-610	1/4 5/16	3/8	.75 .75	1/2 & 9/16 5/8	3/8 & 7/16	Bar	hole for Sliding Bar	1.40 .25
AS-612	3/8	1/2	.85	3/4	1/2 & 9/16	S-20A	Sliding T Handle—11" long	2.10
AS-616 AS-618	1/2 9/16	1/2	.85	7/8	5/8 3/4 & 7/8	S-51	Reversible "Superratchet"— 10-1/2". Reverses instantly	6.75
AS-620	5/8	1/2	.85	1 1/4 & 1 3/8	1	S-110P	Extension—5-1/2"long	1.20

^{*} REGISTERED TRADE MARK



AND DROP-FORGED TOOLS

THE NEW WILLIAMS' TORQUE +"MEASURRENCH" No. S-57

REVERSIBLE RATCHET WITH R. H. TORQUE INDICATING SIGNAL Standard Pattern-1/2" Square Drive



LIST PRICE, Complete-\$26.00

Closely limited torque application is essential in automotive, aviation and Diesel motors; also for many industrial appliances. Such fine adjustments make an efficient indicator of torque a vital necessity in modern practice. "Measurrench" solves the problem wherever limited and equal tension is required on nuts, bolts, studs, etc. Designed especially for use with Williams' Standard "Supersockets", but can be applied to any detachable socket having 1/2" square drive opening.

Williams' Ratchet Torque "Measurrench" is the most efficient and durable tool for torque indicating service on the market. It combines new mechanical features with Williams' standards of superior quality and design, resulting in an unusually strong, effective tool at moderate price.

rench may be used in two ways, as below: By Sight Reading—An easily read scale on the handle indicates applied tightening pressures from 20 to 200 foot-pounds.

By Sound Reading—A sharp sound signal is given for any desired torque from 35 to 200 foot-pounds, by setting the simple sound device.

Accuracy does not depend on delicate gears, levers, or dials, but upon rugged sections of high tensile steel. Although right hand torque only is measured, the wrench action reverses for left hand turning.

Simple in design and sturdy in construction, the reversible ratchet mechanism is a highly desirable feature. The 36-tooth ratchet wheel, with Williams' twin double-tooth, oscillating pawl provides constant engagement with TWO teeth of ratchet-gear in both ON teeth of ratchet-gear in both ON and OFF rotation of nuts.

It makes possible the unusually short operating swing of only 1/30 of a full turn; obstruction hazards are reduced to the minimum. The wrench action is instantly reversed by a mere flip of the shifter, which is flush with the head.

The well balanced drop-forged handle, with specially designed grip, is 19-1/2" long for ample leverage; the head is exceptionally compact and free from protrusions, for easy use in close places.

Every part is made of alloy and high tensile steel, accurately machined and heat-treated. Chrome-plated, with entire top and sides of head and calibrated bar buffed; handle, "satin" chrome. Packed in individual cardboard box.

With each wrench is supplied a chart giving the foot-pounds tension to be applied on cylinder heads, connecting rods, main bearings, etc. This data covers all popular cars and trucks, as recommended by their manufacturers.

USE WILLIAMS' TORQUE "MEASURRENCH"

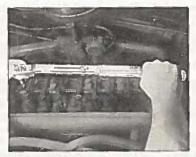
limiting torque in tightening nuts and bolts in DIE CAST ALLOY METAL PARTS.





FOR

accurately following MANU-FACTURERS' SPECIFIED TENSIONS.



all applications which require EQUAL TENSION ON NUTS, STUDS, BOLTS, ETC.



For full line of Standard Sockets and Parts, see pages 52 and 53

WILLIAMS' PLIERS



No. 1519 "Superplier"



Nos. 5 to 10

No. 36



No. 46

No. 57



Nos. 76 and 77

"SUPERPLIERS"

(Slip-Joint)

These "Superpliers" have thin, narrow jaws for use in extremely close places and are drop-forged from tough Chrome-Alloy steel. The bolt provides the greatest strength and rigidity possible in thin, slip-joint construction.

Midget No. 1519, 4-position joint opens 0 to 9/16", with jaws parallel at the most important openings. Efficient for wiring, panel, switchboard, radio, and other delicate work. Cadmium-plated.

Standard No. 1520 is long and slim; 8-position joint opens 0 to 2". Knurled handles provide firm hand grip. Gray satin finish, faces polished.

No.	Length	LIST PRICE
1519	4-1/2	\$1.85
1520	9-1/2	2.20

EDLE NOSE METING PLIERS

Long thin the for close charters, with side-cutting jaws. Knurled handle blued has polished bright.

No.	Lengt	EL PRICE
76 77	6 7	ON-\$2.40 2.70

Weights, page L.

COMBINATION PLIERS

(Slip-Joint)

This line of Combination Pliers, with 2-position slip-joint, is very efficient for general service. All are sturdy, well designed tools. Drop-forged from special steel, with murled handles; polished and nickel-plated.

The Combination Plier vo. 36 is equipped with durable side cutting jaws.

No.	Pattern O	Laffin	LIST PRICE
5	Regular	77.5	\$.65
6	46	"QL	.70
8	46	8	.90
10	46	10	1.25
36	Side-Cutting	6	.90

DIAGONAL CUTTING PLIERS

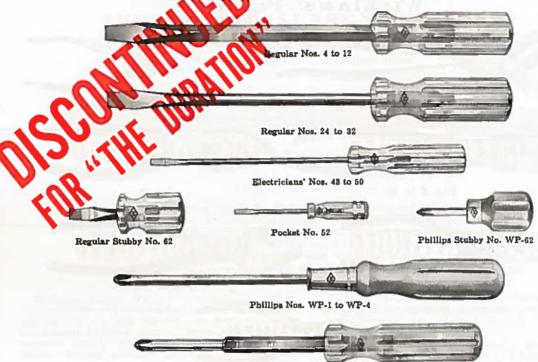
Mechanics and Electricians find many varied uses for these ruged tools. They are drop-forged from special cough star; cutting-edge is made for lasting service. Not has knurled handles; full polished finish No. 57 has broader and more powerful jaws for many duty head polished.

No.	Pattern	Length	TET PRICE
46	Regular	(OA)	\$1.25
57	Heavy Duty	7	2.30



AND DROP-FORGED TOOLS

WILLIAMS' SCREW DRIVERS



Phillips No. CP-4

Williams' Regular, Electricians', Pocket and Stubby (adjusting) Screw Drivers are all fitted with handles of a tough transparent composition, an insulator of electricity. Fluted for sure, comfortable grip. The blades, hardened and tempered throughout their entire length, are solidly anchored in the handles.

Regular patterns are available with either square or round blades. Electricians' have round blades and the Stubby a square blade. The Pocket has round blade and is fitted with pocket clip, as illustrated.

FOR PHILLIPS SCREWS

Williams' Screw Drivers, Nos. WP-1 to WP-4, will fit the entire range of Phillips recessed-head screws. These, and the Phillips Stubby (adjusting), Screw Driver have round chrome-alloy blades, hardened and tempered, that are securely anchored in superior hard wood, fluted handles.

The No. CP-4 Phillips Screw Driver has a transparent composition handle and a blade that is hexagon for more than half of its length. This permits the use of a wrench for added leverage.

All Screw Drivers packed 6 in cardboard box, excepting No. 52, 12 per box.

	AR—SQUARE	BLADE—CO	MPOSITION	HANDL
No.	Blade Length	Stock Size	Tip Width	Price
4	4	1/4	5/16	\$1.05
6	6	5/16	5/16	1.40
6B	6	3/8	3/8	1.55
8	.8	3/8	3/8	1.75
12	12	3/8	3/8	2.10
REGUI	LAR-ROUND I	BLADE—CO	MPOSITION	HANDLE
24	4	1/4	1/4	\$,95
26	6	5/16	5/16	1.30
28	. 8	3/8	3/8	06.1
32	12	3/8	3/8	1.95
ELEC	TRICIANS'-Ro	und Blade-	-Composition	Handle
43	1 3	3/16	3/16	\$.75
46	6	3/16	3/16	,95
50	10	3/16	3/16	1.10
OCKE	r (with Clip)-	Round Blad	e-Compositi	on Hand
52	2-1/4	1/8	1 1/8	.32
REGU	LAR STUBBY	(Adjusting)-	Composition	Handle
	1-1/2	1/4	5/16	.65
62				
62		IPS-Wood	Kandle	
62 No.		IPS-Wood		Price
	PHILL	IPS-Wood		Price
No.	PHILL Fits Screws No. 4 and Smaller 5 to 9 incl.	IPS—Wood I Blade Length 3	9/64 1/4	.60
No. WP-1	PHILL Fits Screws No. 4 and Smaller 5 to 9 incl. 10 to 16 incl.	IPS—Wood I Blade Length 3 4 6	9/64 1/4 5/16	.60 .65 .75
No. WP-1 WP-2	PHILL Fits Screws No. 4 and Smaller 5 to 9 incl.	IPS—Wood I Blade Length 3	9/64 1/4	.60
No. WP-1 WP-2 WP-3	PHILL Fits Screws No. 4 and Smaller 5 to 9 incl. 10 to 16 incl.	IPS—Wood I Blade Length 3 4 6 8	8tock Sixe 9/64 1/4 5/16 3/8	.60 .65 .75



PHILLIPS SCREW DRIVER SET NO. WP-14

WP-62 | 5 to 9 incl.

LIST PRICE, \$2.95 Complete In Cardboard Box This Set of four Phillips Screw Drivers consists of one each of Numbers WP-1, WP-2, WP-3, and WP-4, packed in a cardboard box. This combination covers the entire range of Phillips Screws. Their round, chrome-alloy blades are securely anchored in superior hard wood, fluted handles.

1-1/2

WILLIAMS' PUNCHES and CHISELS



Williams' Punches are forged from high grade octagon alloy steel, properly hardened and tempered to stand up under the most severe service. Body finished in black, with the taper and head full polished. Packed 6 in cardboard box.

No.	Point Diam.	Stock Size	Length	List Price
	PIN	PUNCHES		
P-4 P-6 P-8	1/8 3/16 1/4	3/8 1/2 5/8	6 6 8	\$.54 .62 .77
	SOL	ID PUNCHES	5	
P-13 P-14	3/32 1/8	1/2 1/2	6 8	.62
	LONG T	APER PUNC	HES	
P-25 P-26	5/32 3/16	3/8 1/2	10	.75 .85
	PR	ICK PUNCH		
P-30	1	3/8	1 5	.45
	CEN	TER PUNCE		-
P-40		3/8	5	.45



COLD, or FLAT CHUELS

Williams' Chisels, of high game octagen aloy steel, are carefully forged, hardened and tempered Amply hard for work on tempered majorial, y soft enough to minimize chipping and to be mit resharpening with a file. Body finished in lask with full polished bit and head. Packed to in card-board box, excepting No. C-36, 3 in a box.

RIVET BUSTER

Designed especially for cutting off hardened rivet heads. A great time saver when used for this purpose, instead of the ordinary chisel. Packed 3 in a box.

No.	Width of Cut.	Stock Size	Length	List Price
1-31	COLD,	or FLAT CHIS	ELS	
C-8 C-12 C-16 C-20 C-24 C-36	1/4 3/8 1/2 5/8 3/4 1 1/8	1/4 3/8 1/2 5/8 3/4	4 3/4 5 1/2 6 6 1/2 7	\$.54 .62 .73 .85 1.05 1.65
	RI	VET BUSTER		
C-422	11/16	3/4	12	1.65

WILLIAMS' WHEEL PULLER No. 5
FOR REFRIGERATION SERVICE

This Williams' Wheel Puller is a simple efficient tool developed on the many pulling jobs in Refrigeration Service, such as flynd els fans and pulleys. It can also be used for many pulling jobs of restrict motors, etc.

The body, forged from high tensile steel, has four sockets into which either two or all three of the arms may be placed in various positions, providing a combination of grips. Flywheels with even or odd numbers of spokes are pulled with equal ease. All three arms are necessary for odd-spoked wheels, while only two are needed for an even number of spokes. The pulling capacity is 7" diameter.

Easily adjusted arms, processed from alloy steel, are held in place by an endless spring. They are instantly reversible by merely turning the arm in the socket for either internal or external pulling. This feature eliminates the need of removing or repositioning the arms.

The hex head of the power screw, on which any convenient wrench can be used, has a knurled band to facilitate rapid hand turning. Its cone point fits into the center-hole of the shaft end.

For Refrigeration Wrenches see page 45. For Refrigeration "Supersocket" Set see page 65.



* LIST PRICE Complete—\$12,25

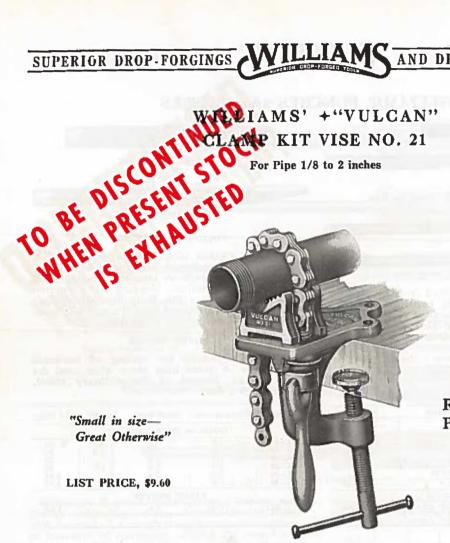
	Capacity	Do des	Towardh		*List Price	s, Puller an	d Extra Parts	-
No.	Diameter	Body Diameter	Length Arms	Arms Each	Screw	Spring	Complete	No.
5	7	3 1/4	4 1/4	\$2.25	\$3.20	\$.65	\$12.25	5

Weights, page L.

*Subject to Liberal Discount.

"Small in size-Great Otherwise"

LIST PRICE, \$9.60



RAPID ACTION POSITIVE GRIP RIGID COMPACT LIGHT

This Clamp Kit Vise can be readily and firmly attached to bench, post, or other support without the use of bolts, or screws. Easily carried; weighs only 5-3/4 lbs.

The clamping device is very efficient. The clamp member is integral with the base; the clamp-screw, set at a slight forward angle (as illustrated), carries a swivel with thin V lip projecting from its upper edge. Consequently, the Vise can be securely and rigidly attached to support.

The drop-forged jaws are saw-tempered for file-sharpening. Chains are of the same superior quality as those in Williams' "Vulcan" Tongs. Jaws, chain, nut and handle are interchangeable with similar parts of "Vulcan" Vise No. 1.

Packed one in a box for convenient shelving.

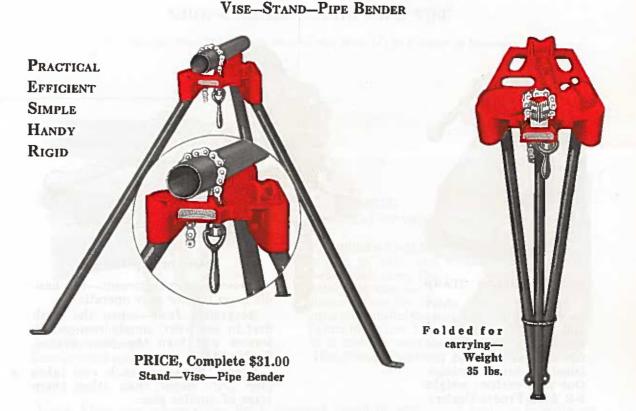
Orders for Chains take Screw also, unless otherwise specified.

	For	Weight		LIST PR	ICES, VI	SES and	EXTRA	PARTS		
No.	Pipe, Sizes	Each, Lbs.	Vise, Com- plete	Jaws, Pair	Chain with Screw	Chain Screw Only	Handle with Nut	Nut Only	Clamp Screw & Swivel	No.
21	1/8 to *2"	5 3/4	\$9.60	\$3.00	\$2.50	\$.80	\$2.20	\$1.40	\$2.00	21

*Will grip pipe fittings not larger in diameter than 21/2" pipe.

REGISTERED TRADE MARK

3-IN-1 WILLIAMS' +"VULCAN" VISE STAND NO. V-1



Williams' "Vulcan" Vise Stand combines all the advantages of the Chain Pipe Vise with a firm and rigid, yet easily portable stand. It is a most efficient tool for all pipe, 1/8 to 2 inches, at very moderate price.

Base (high grade malleable iron) is heavily reinforced under the aprons to prevent distortion in severe service. In addition to "V" pipe support in rear, recess for oil can and slots for handy arrangement of tools are provided.

Pipe Bender handles pipe up to 3/4 inch.

Legs are 1" pipe, with upset feet, punched for fastening to floor, if desired. Even without such fastening, they provide firm, stable support. For easy carrying, the legs fold and may be tied together by a permanently attached chain (see illustration).

Jaw—tool steel, carefully hardened and tempered—grips along its entire length. No bending of the smaller sizes of pipe.

Chain, Nut and Handle are of tough wrought steel. All three are the same as and are interchangeable with those supplied with Williams' "Vulcan" Vise No. 1—the original Chain Pipe Vise and the favorite for over 40 years.

All parts of Vise Stand are interchangeable.

Vise	-yes, and		LIST PE	RICES, ST	AND COM	IPLETE a	nd VISE I	PARTS	
Stand No.	For Pipe Sizes	Weight, Complete	Stand, Complete	Jaw Only	Chain with Screw	Chain Screw Only	Handle with Nut	Handle Only	Nut Only
V-1	1/8 to *2"	35 Ibs.	\$31.00	\$3.20	\$2.50	\$.80	\$2.20	\$1.50	\$1.40

^{*} Will grip pipe fittings not larger in diameter than 21/2" pipe.

⁺ REGISTERED TRADE MARK

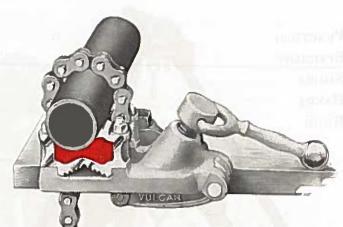
WILLIAMS POTENCE CHICAGO FORCE TOO

WILLIAMS' +"VULCAN SUPERIOR" DROP-FORGED CHAIN PIPE VISE



METAL DISPLAY STAND

Supplied with short length of pipe and bolts and nuts for attaching vise No. 11. Space in base for circulars. Stand finished in bright orange. One in a carton; weight 6-3/4 lbs. Free to Dealers.



Points of Superiority

"Overhead" Adjustment—the handle is on top for easy operation.

Reversible Jaws—when the teeth first in use wear, simply remove the screws and turn the jaws over—double life.

Larger Capacity—each vise takes pipe 1/2" larger than other chain vises of similar size.

The "Vulcan Superior" Vise provides all the reliability of Williams' old "Vulcan"—the ORIGINAL Chain Pipe Vise and the favorite for more than 30 years—together with the convenience of "overhead" adjustment. Reversible jaws, too, for longer life.

Wholly made from tough wrought steel—no castings are tolerated. Drop-Forged base, jaws, handle and chain-arm. The chains are of the same unsurpassed quality as those of the widely established "Vulcan" Chain Pipe Tongs. Unbreakable, rapid in action, positive in grip. Fully guaranteed.

Supplied in 2 styles of finish—see table. Packed one in a box.

Chrome-plated will be furnished, unless otherwise specified

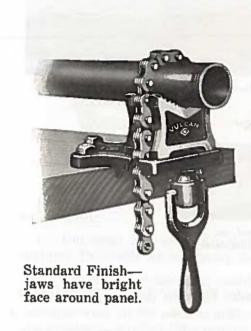
No.	For Pipe, Sizes	Wt. Each, Lbs.	Jaws, Pair	Chain, with- out Arm	Screw	Handle with Screw	Chain Arm	VISE Com- plete	No.
		* Price	Chrome-	plated Fini	sh, Edges	of Jaws Bri	ight		
* 11 * 12	1/8 to 2 1/2 1/4 to 4 1/2	7 15	\$4.00 9.00	\$2.20 4.00	\$1.15 1.65	\$2.80 4.15	\$1.40 2.25	\$12.00 22,00	11 12
		Price, Sta	andard Fi	nish—Shot	-blasted, C	range Pane	el in Jaws		
11 12	1/8 to 2 1/2 1/4 to 4 1/2	7 15	\$3.30 7.70	\$2.00 3.60	\$1.00 1.45	\$2.35 3.50	\$1.20 1.85	\$10.00 19.00	11 12

+ REGISTERED TRADE MARK

WILLIAMS' GENUINE +"VULCAN"

THE ORIGINAL DROP-FORGED CHAIN PIPE VISE

For Holding Pipe, Bolts, Bars, Shafts, etc., from 1/8 to 8 inches in Diameter



METAL DISPLAY STAND

Supplied with short length of pipe and bolts and nuts for attaching vise No. 1. Space in base for circulars. Standfinished in bright orange. One in a carton; weight 4lbs. Free to Dealers.



These Vises are unbreakable, light, compact, rapid in action and positive in gripping pipe. All are readily fastened to bench or post. The smaller sizes are well adapted for carrying by hand or in tool bag.

Adjustment is quickly effected by engaging the projecting rivets of the chain with a series of stepped bosses on the base, when the vise may be instantly locked in an unbreakable grip by a turn of the handle.

They are made entirely of wrought steel; the drop-forged jaws are of saw-tempered steel for file-sharpening. The chains are of same quality as those of our "Vulcan" Chain Pipe Tongs; all parts are fully guaranteed and replacements carried in stock.

All Vises are packed in individual boxes for convenient shelving. Six of Nos. 1 and 2 boxes to a carton.

Orders for Chains take Screw also, unless otherwise specified.

	The same	HEN SERVE	W_4		L	ist Prices	, Vises ar	d Extra F	arts		
No.	For Pipe, Sizes	Size, Folded for Packing	Wgt. Each, Lbs.	Jaws Pair	Chain with Screw	Screw	Handle with Nut	Handle Only	Nut	Vise Com- plete	No.
1 2 3 4	1/8 to *2 1/4 to 4 1/2 to 6 1/2 to 8	4 x 5 x 6 6 x 8 x 8 8 x 9 x 11 8 x 10 x 12	10 18 30	\$ 3.00 7.00 12.00 18.00	\$ 2.50 4.80 9.00 12.00	\$.80 1.40 2.50 2.50	\$2.20 4.20 7.00 7.00	\$1.50 3.00 5.00 5.00	\$1.40 2.70 4.00 4.00	\$ 7.00 15.00 27.00 36.00	1 2 3 4

^{*}Will grip pipe fittings not larger in diameter than 2-1/2" pipe.

⁺ REGISTERED TRADE MARK

FLAT LINK CHAINS

FOR ALL WILLIAMS' "VULCAN" CHAIN PIPE TONGS

THREE TYPES

1. STANDARD



Plain links without any markings as illustrated. Natural, tumbled steel finish.

2. "XTRA-STRONG"



Marked on first flat link as illustrated.
Finished black all over.

3. + "SUPERCHAIN"



Identified by markings stamped on each link as illustrated. Finished completely in cadmium-plate.

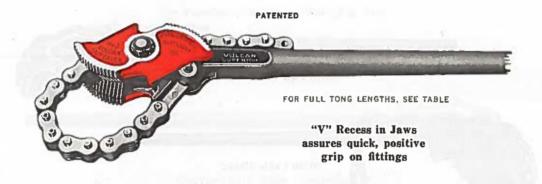
There are three different types of Flat Link Chains for Williams' Tongs—STANDARD, "XTRA-STRONG" and "SUPERCHAIN."

- 1. Standard Chains are made of special high tensile carbon steel and each is proof-tested as described below. Standard chains are interchangeable, size for size, on the following Tongs with which they are furnished as original equipment: "Vulcan," "Improved Vulcan," "Vulcan Superior" and "Vulcan Boll-Weevil." Standard Chains should not be used with "Supertongs," or with the "Boll-Weevil Zephyr."
- 2. "Xtra-Strong" Chains are made from special high tensile carbon steel, heat-treated to give approximately 40% more strength than Standard Chains. These Chains are prooftested as described below. Furnished at extra charge, they are interchangeable, size for size, on "Vulcan Superior," "Vulcan," "Improved Vulcan" and "Vulcan Boll-Weevil."
- 3. "Superchains" (Flat Link type only) are made from Alloy Steel, heat-treated and cadmium-plated. Each "Superchain" is proof-tested as described below. Furnished as original equipment on "Vulcan Supertongs," "Superchains" are interchangeable, size for size, and can be supplied at extra cost on all Williams' Tongs except the "Boll-Weevil Zephyr." Due to extra length, "Zephyr" Superchains are not interchangeable with any other pattern of tongs. They must be ordered specifically by number for exact "Zephyr" size desired.

Proof-Testing. Each Chain, regardless of type, is individually "proof-tested" on a standard tension machine to two-thirds of its breaking strain. Every chain so tested is stamped O on the drop-forged swinging-link and to it is attached a leaden seal, bearing our trademark . Every Flat Link Chain leaving our works must bear this mark and seal—the Proof of Quality—as evidence that it has passed our standardized proof-tests.

WILLIAMS' +"VULCAN SUPERIOR" DROP-FORGED PIPE-AND-FITTINGS TONGS

For Both Pipe and Fittings, 1/8 to 12 in.



In no other tongs on the market can all these desirable "Vulcan Superior" features be obtained:—

- 1. Universal Service—Two tools in one. Always ready "as is" for either pipe or fittings. Two tools as commonly used (one for pipe, one for fittings) are unnecessary.
- 2. "V" Recess in the jaws, combined with their general design, gives "Vulcan Superior" a greater number of grips or "bites," both on pipe and fittings, than ordinary tongs. One-spot wear on the teeth is prevented and easier operation provided. Increased strength and greater ease in handling results.
- 3. Reversible pipe-and-fittings jaws. When the teeth first in use wear, simply unscrew the bolt and turn the jaws end-for-end.
 - 4. Chains*-Either Flat Link Chain, or Cable Chain, as desired.
- 5. Proof-Testing. Each Flat Link Chain is individually "proof-tested" on a standard tension machine to two-thirds of its breaking strain. Every chain so tested is stamped O on the drop-forged swinging-link and to it is attached a leaden seal, bearing our trade mark & Every Flat Link Chain leaving our works must bear this mark and seal—the Proof of Quality—as evidence that it has passed our standardized proof-tests.

Wholly made from tough wrought steel; all parts are interchangeable.

Number	0	1	2	3	3 1/2	4	5
For Pipe and Fittings, inches.	1/8 to 3/4	1/8 to 1 1/2	1/4 to 2 1/2	3/4 to 4	1 to 6	1 1/2 to 8	2 to 12
Extreme Length	13 3/4	20	27	37	44 1/2	50 1/2	64 1/2
Weight, lbs	2	5 1/2	10	17	26	34	54
Standard Flat Link Chain, .							
Breaking Strain, Ibs	3,600	6,700	9,800	12,500	14,300	15,700	21,800
Cable Chain,		0,, 4.0	1,000	10,000	,	10,100	-1000
Breaking Strain, Ibs	1,800	6,000	9,000	12,500	14,300	15,700	21,800
LIST PRICE, Complete	\$5.00	\$7.00	\$10.00	\$14.00	\$18.00	\$22.00	\$36.00
*Extra Std. Flat or Cable Chain	1.50	2.00	3.00	5.00	7.00	9.00	15.00
†Extra Jaws, per pair		3.50	5.50	8.00	9.50	11.00	15.00
Extra Bolt and Nut, per set	.28	.36	.46	.60	.70	.90	1.30

[†] Extra Jaws supplied in pairs unless otherwise called for. If only a single jaw is wanted, specify Right or Left.

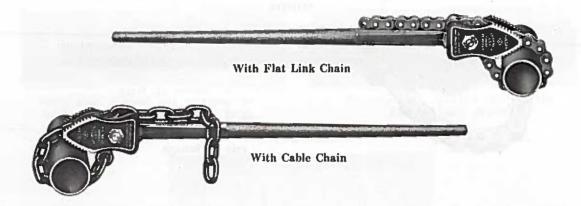
[&]quot;Vulcan Superior" Tongs can be furnished with "Xtra-Strong" Flat Chain if specified, at small extra charge.

^{*} See opposite page for data on Flat Link Chains.

⁺ REGISTERED TRADE MARK

WILLIAMS' GENUINE +"VULCAN" DROP-FORGED CHAIN PIPE TONGS

For Turning, or Holding 1/8 to 18 in. Pipe



The Original "Vulcan," introduced by Williams forty years ago, is still the oil-fields' favorite tongs for general work. All "Vulcans" are made entirely from tough wrought steel and are fully guaranteed.

Chains* swing from the center and can be used on either side of the jaws, thus reducing to the minimum, wear upon specific teeth.

Proof-testing. To insure proper service, each Flat Link Chain is "proof-tested" in a standard tension machine to two-thirds of its breaking strain listed in table. Each Chain, so tested, is stamped O on the drop-forged swinging link and to it is attached a leaden seal bearing our trademark who thus absolutely establishing the safety-factor and reliability of every tong.

The jaws are fastened to the handle by extra size through bolt and U. S. Standard Nut.

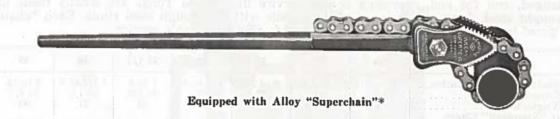
Number	10	11	12	13	13 1/2	14	15	16
Capacity	1/8	1/8	(1/4	(3/4	1 1	(1 1/2	(2	(4
Size Pipe, inches	to	to	to	to	to	to 8	to	to
	3/4	1 1/2	2 1/2	4	6		12	18
Extreme Length	13 3/4	20	27	37	44 1/2	50 1/2	64 1/2	87
Weight	2	5 3/4	10	17	24	31	52	137
Flat Standard Chain								
Length	9 1/2	13 1/2	17 1/2	22 1/2	32	40 1/2	55 1/2	74 1/2
Breaking Strain, lbs	3,600	6,700	9,800	12,500	14,300	15,700	21,800	40,000
Cable Chain								
Length	9 3/4	14 1/2	18	27	33 1/2	42	57	76
Breaking Strain, lbs	1,800	6,000	9,000	12,500	14,300	15,700	21,800	40,000
LIST PRICE, Complete with			The same					
Flat Standard or Cable Chain	\$5.00	\$7.00	\$10.00	\$14.00	\$18.00	\$22.00	\$36.00	\$80.00
*Extra Standard Flat or Cable Chain.	1.50	2.00	3.00	5.00	7.00	9.00	15.00	40.00
Extra Jaws, pair	2.00	3.50	5.50	8.00	9.50	11.00	15.00	32.00
Extra Bolt and Nut, per set	.28	.36	.46	.60	.70	.90	1.30	2.50
Flat "Xtra-Strong" Chain, Number	X 10	X 11	X 12	X 13	X 13 1/2	X 14	X 15	X 16
Length	9 1/2	13 1/2	17 1/2	22 1/2	32	40 1/2	55 1/2	74 1/2
Breaking Strain, Ibs	5,070	9,400	13,800	17,600	20,100	22,000	31,000	56,000
LIST PRICE, Complete with Flat								
"Xtra-Strong" Chain	\$5.15	\$7.20	\$10.30	\$14.50	\$18.70	\$22,90	\$37.50	\$84.00
*"Xtra-Strong" Chain Only	1.65	2.20	3.30	5.50	7.70	9.90	16.50	44.00

^{*} See page 78 for data on Flat Link Chains

WILLIAMS' +"VULCAN SUPERTONG" DROP-FORGED ALLOY AND HIGH-TENSILE STEEL

HEAT-TREATED

For Turning, or Holding 1/8 to 18 in. Pipe



The design and structural features of "Supertongs" are identical with those of "Vulcan Tongs" described on the opposite page. "Supertongs," however, are forged from Alloy and High-tensile steel, and are heat-treated. They provide at least 50% greater strength than regular "Vulcan" Tongs of corresponding size, with no increase in bulk or weight.

"Supertongs" are equipped with "Vulcan Superchains," a new Williams' chain of Alloy Steel—heat-treated and cadmium-plated—having greatly increased strength and durability; see page 78. Each "Superchain" is individually "proof-tested" in a standard tension machine to two-thirds of its breaking strain listed in table. Each chain, so tested, is stamped O on the drop-forged swinging link and to it is attached a leaden seal bearing our trade mark \$\infty\$, thus absolutely establishing the safety-factor and reliability of every tong.

Finish:—Gray enamel; blue panel in Jaw, with bright faced edges. The "Superchains" are cadmium-plated.

Number	A10	A11	A12	A13	A13 1/2	A14	A15	A16
Capacity Size Pipe, inches	1/8 to 3/4	1/8 to 1 1/2	1/4 to 2 1/2	3/4 to 4	1 to	1 1/2 to	2 to 12	{ to 18
Extreme Length	13 3/4	20 5 3/4	27 10	37 17	44 1/2	50 1/2	64 1/2 52	87 137
Flat Link "Superchain"							7.00	
LengthBreaking Strain, lbs	9 1/2 5,800	13 1/2 10,800	17 1/2 15,600	22 1/2 20,000	32 22,800	40 1/2 25,000	55 1/2 35,000	74 1/2 64,000
LIST PRICE				2 10			A COLUMN	
Complete *Extra "Superchain". Extra Jaws, pair.	\$7.50 2.50 3.50	\$10.50 3.50 5.50	\$15.00 5.50 8.00	\$21.00 8.50 11.00	\$27.00 11.50 13.50	\$33.00 14.50 16.50	\$54.00 24.00 24.00	\$120.00 62.00 50.00
Extra Bolt and Nut, per set	.28	.36	.46	.60	.70	.90	1.30	2.50

^{*} See page 78 for data on Flat Link Chains.

IMPROVED +"VULCAN" CHAIN PIPE TONGS

WITH DOUBLE-ENDED REVERSIBLE JAWS

For Turning, or Holding 1/8 to 12 in. Pipe



Improved "Vulcan" Tongs have double ended reversible jaws which may be quickly changed, end for end, providing double service life. These Tongs are wholly made of wrought steel. Jaws are fastened to the handle with two tough steel studs. Each *chain is proof-tested and certified assuring long, safe and dependable service.

Number	30	31	32	33	33 1/2	34	35
Capacity—Size Pipe, Inches Extreme Length Weight, lbs	13 3/4	1/8 to 1 1/2 20 5 3/4	1/4 to 2 1/2 27 10	3/4 to 4 37 17	1 to 6 44 1/2 24	1 1/2 to 8 50 1/2 31	2 to 12 64 1/2 52
Flat "Standard" Chain Length	9 1/2 3,600 \$5.00 1.50 2.00	13 1/2 6,700 \$7.00 2.00 3.50 .50	17 1/2 9,800 \$10.00 3.00 5.50	22 1/2 12,500 \$14.00 5.00 8.00 .90	32 14,300 \$18.00 7.00 9.50 1,10	40 1/2 15,700 \$22,00 9.00 11.00 1.40	55 1/2 21,800 \$36.00 15.00 15.00 1.80

Improved "Vulcan" Tongs can be furnished with "Xtra-Strong" Flat Chain if specified, at small extra charge.

+"VULCAN BOLL-WEEVIL" For Oil Fields Service



PATENTED
Reversible Action

Designed for flat pipe work and pipe line work, the "Vulcan Boll-Weevil" eliminates holding up of heavy tongs against pipe from below. Simply lay tongs on top of pipe and hook chain around it. Positive grip and ready release. The Jaws are reversible for double service life. Equipped with "Standard" *Chain.

+"BOLL-WEEVIL ZEPHYR" Light Weight — Heat-Treated



PATENTED
Equipped with Alloy "Superchain"

Exactly the same design, structural and utility features as the regular "Vulcan Boll-Weevil" but stronger and lighter in weight, capacity for capacity. Forged from special high-tensile steel, heat-treated. Equipped with *"Superchains" cadmium - plated. Handle and panel in Jaws—gray enamel; Jaws—bright faced edges, blue backs.

		"BOLL-	VEEVIL"	"ZEPHYR"			
Number	23	23 1/2	24	25	123 1/2	124	125
Capacity-Size Pipe, inches	3/4 to 4	1 to 6	1 1/2 to 8	2 to 12	3/4 to 6	1 to 8	1 1/2 to 12
Extreme Length	37	44 1/2	50 1/2	64	41	47	57 1/2
Weight, lbs	19	28	41	65	20 3/4	30 1/4	44 3/4
Chain, Breaking Strain, lbs	12,500	14,300	15,700	21,800	20,000	22,800	25,000
LIST, Complete with Standard Chain	\$14.00	\$18.00	\$22.00	\$36.00	\$20.00	\$26.00	\$36.00
*Extra Standard Chain	5.00	7.00	9.00	15.00			
*Extra "Superchain"					10.50	14.00	19.00
Extra Jaws, pair	8.00	9.50	11.00	15.00	8.50	10.50	13.00
Flat "Xtra-Strong" Chain, Number	X23	X23 1/2	X24	X25			
Breaking Strain, lbs	17,600	20,100	22,000	31,000			
LIST, *"Xtra-Strong" Chain, only	\$ 5.50	\$ 7.70	\$ 9.90	\$16.50			
Tong with "Xtra-Strong" Chain	*	18.70	22.90	37.50			

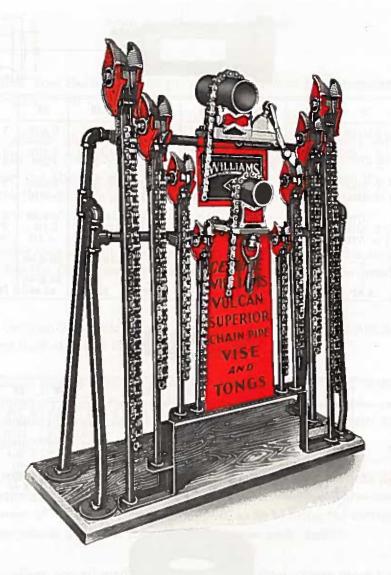
⁺ REGISTERED TRADE MARK

^{*}See page 78 for data on Flat Link Chains

DISPLAY RACK

FOR

WILLIAMS' +"VULCAN" CHAIN PIPE TOOLS



An attractive method of display and an efficient aid to salesmen in demonstrating Williams' "Vulcan" Chain Pipe Tools. It makes the usual dark-corner storage space unnecessary and increases the interest of both buyer and seller in this stock.

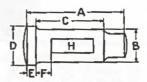
The rack is made of wrought iron pipe, painted black with metal panels enameled in orange, and occupies about 14 x 38" floor space—3 ft. high. It is loaned only to dealers for use with Williams' "Vulcan" Chain Pipe Tongs and Vises.

WILLIAMS' +"VULCAN" TOOL POST FITTINGS

UNFINISHED

TOOL POSTS Openings Punched Out





Number	5	10	20	23	28	30	40	50	60
Length, A Body	2 15/16	4 1/16	4 9/16	5	5 3/16	5 1/4	6 5/16	7 3/8	8 3/4
Diameter, B Length, C	1 1/32	1 1/4 2 7/8	1 5/8 3 1/4	1 7/16 3 1/2	1 9/16 3 11/16	1 13/16 3 3/4	2 1/16 4 3/8	2 1/4 5	2 31/32 6
Base Diameter, D Thickness, E	1 7/32 5/16	1 5/8 1/4	2 1/8 7/16	1 7/8 5/16	2 1/16 5/16	2 5/16 1/2	2 5/8 9/16	2 15/16 5/8	3 5/8 3/4
Base to Opening, F Opening Size, H	7/16 { 1 5/16 x 7/16	1/2 1 15/16 x 19/32	13/16 1 7/8 x 11/16	5/8 2 1/2 x 21/32	5/8 2 11/16 x 11/16	15/16 2 1/8 x 3/4	1 3/16 2 1/2 x 7/8	1 3/8 2 7/8 x 15/16	1 1/2 3 9/16 x 1
For use with Wedge	5	10	15 & 18	15 & 18	15 & 18	18 & 20	30 & 40	60	1100
For use with Ring LIST PRICE	5 \$.82	10 \$1.05	11 \$1.40	14 \$1.65	18 \$1.90	20 \$2.10	30 & 40 \$3.05	60 \$3.95	\$7.95

TOOL POST WEDGES



For Changing Angles of Lathe Tools

*Number	5	10	11	15	18	20	30	40	60	65
Length. Width—Top. Width—Extreme. Extreme Thickness. Radius. For Use with Post. For Use with Ring. LIST PRICE.	2 13/32 13/32 1/2 11/32 3 5 5 \$.27	3 9/16 21/32 31/64 2 7/8 10 10 \$,30	3 3/8 1/2 19/32 25/64 4 5/8 20 11 \$.30	3 3/8 5/8 23/32 7/16 4 5/8 20 11 \$.33	3 7/8 5/8 3/4 15/32 4 1/2 20 & 30 11 & 20 \$.34	3 7/8 11/16 13/16 17/32 4 3/4 30 20 \$.35	4 3/8 3/4 7/8 1/2 5 1/2 40 30 \$.40	4 7/8 13/16 15/16 21/32 5 3/4 40 40 \$.47	5 1/4 15/16 1 3/32 3/4 6 50 60 \$.56	5 5/16 7/8 1 1/32 29/32 5

TOOL POST RINGS



For Changing Angles of Lathe Tools

Number	5	10	11	14	18	20	30	40	60
Diameter, Outside Diameter, Hole	2 1/4 1 1/16	2 15/16 1 5/16	3 1 5/8	3 3/16 1 7/16	3 7/16 1 9/16	3 1/2 1 3/4	3 1/2	4 2	4 1/2 2 3/16
Thickness, Edge Radius of Concave	3/8	2 7/16	7/16 4 5/8	5/8 4 5/8	11/16 4 1/2	9/16	3/4 5 1/2	3/4 5 3/4	6 3/4
For Use with Post	5	10	20	23	28	30	40	40	50
For Use with Wedge	\$.33	\$.47	11 & 15 \$.52	18 & 20 \$.75	18	18 & 20 \$.82	\$1.00	\$1.15	\$1.50

REGISTERED TRADE MARK

WILLIAMS'

DROP-FORGED TOOL-HOLDERS

"THE HOLDERS THAT HOLD"

The Williams' Tool Holder System provides tool holders for convenient, efficient and economical operation in all lathe work.

Holders, or shanks, all drop-forged from a strong, tough grade of carefully selected steel, are specially heat-treated and hardened. These processes develop maximum resistance to all wear and also the sturdy strength necessary to overcome the pushing thrust imposed upon the Cutters. The nose of the Holders is chamfered to permit convenient use in cramped quarters, where space is limited.

Cutter-holding channel is unusually accurate and long. It provides an absolutely true and rigid seat for the Cutter and assures a chatter-proof tool. No breaking of costly high speed steel bits.

Williams' Cutting-Off & Side-Tools provide unequalled convenience and economy—one Holder takes both styles of blade.

Each Williams' Boring-Tool holds securely many sizes of Bars, without requiring sleeves, or bushings. This is often a great convenience, since any size bar, within the capacity of the holder, can be inserted instantly without waiting to locate loose parts that have been lost, or mislaid.

Williams' Planing-Tools, because of their unique design, provide 24 different angles of cutter adjustment instead of the usual 5—a real advantage when working in close quarters. Reversal of the Holder in the tool post, so as to bring the cutting point behind the center of the shank, makes a most efficient "goose neck" tool.

Williams' Cutters are all made from High Speed Steel. Since those for Turning and Planing Tools are cut to the "diamond-point" form or bevel, they care for the most common requirements with a minimum of grinding. All Cutting-Off, Side and Threading Cutters are finished, ready for use.

Hardening Cutters. Only the most modern and efficient equipment is used in hardening Williams' Cutters. Variations in hardness, beyond our standardized close limits, are entirely eliminated and consistent high quality, with durable cutting edges, maintained.

WILLIAMS' CARBIDE TURNING-TOOL HOLDERS

With Straight and Offset Shanks

"THE HOLDERS THAT HOLD"



Straight Shank



Right Hand Offset Shank

Furnished with Wrench, but without Cutter

> Left Hand Offset Shank



In these Tools, the Cutter is held parallel to the shank. Consequently, Cutters can be so ground as to provide maximum support for the cutting edge. This feature, plus the extremely rigid Holder, is the recognized basis for the best performance of cemented Carbide Cutters.

Holders are broached for either square or flat standard Carbide Cutters, but are supplied WITHOUT CUTTERS. These may be obtained, on short notice, directly from the manufacturers of cemented carbide "tips." Inquiries sent us for Cutters with order for Holders, or separately, will be forwarded to leading manufacturers of cemented carbides, thereby assuring customers of direct, expert assistance from carbide cutter specialists.

Carbide Cutters, as supplied by their manufacturers, are available in many grades and standardized shapes of tips. Always specify material to be cut, nature of operation, form of cutter desired, its size and whether square, or flat. Flat cutters are recommended for general work.

Number			F	For Cutter		Number			
~	Offset Shank		Holder, Size			PRICE Holder		Offset Shank	
Straight	Right	Left	Holder, Size	Sq.,	Flat,	Without	Straight	Right	Left
Shank	Hand	Hand		Size	Size	Cutter	Shank	Hand	Hand
	4000		FOR SQ	UARE	CUTTERS	No.			
T-0-S	T-0-R	T-0-L	3/8 x 15/16 x 6	1/4	Harres	\$ 3.20	T-0-S	T-0-R	T-0-L,
T-1-S	T-1-R	T-1-L	1/2 x 1 1/4 x 7	5/16		3.60	T-1-S	T-1-R	T-1-L
T-2-S	T-2-R	T-2-L	5/8 x 1 1/2 x 8	3/8		4.50	T-2-S	T-2-R	T-2-L
T-3-S	T-3-R	T-3-L	3/4 x 1 3/4 x 9	7/16		6.00	T-3-S	T-3-R	T-3-L
T-4-S	T-4-R	T-4-L	7/8 x 1 7/8 x 10	1/2		7.60	T-4-S	T-4-R	T-4-L
T-5-S	T-5-R	T-5-L	1 x 2 1/8 x 12	5/8		10.80	T-5-S	T-5-R	T-5-L
FT-1-S	FT-1-R	FT-1-L	1/2 x 1 1/4 x 7		5/16 x 7/16	\$ 4.40	FT-1-S	FT-1-R	FT-1-L
FT-2-S	FT-2-R	FT-2-L	5/8 x 1 1/2 x 8		3/8 x 1/2	5.40	FT-2-S	FT-2-R	FT-2-L
FT-3-S	FT-3-R	FT-3-L	3/4 x 1 3/4 x 9		7/16 x 9/16	7.20	FT-3-S	FT-3-R	FT-3-L
FT-4-S	FT-4-R	FT-4-L	7/8 x 1 7/8 x 10		1/2 x 3/4	9.20	FT-4-S	FT-4-R	FT-4-L
FT-5-S	FT-5-R	FT-5-L	1 x 2 1/8 x 12		5/8 x 7/8	12.90	FT-5-S	FT-5-R	FT-5-L

^{*}Holders for Flat Cutters to be Discontinued when stock is exhausted

WILLIAMS' TURNING-TOOL HOLDERS

With Straight and Offset Shanks

"THE HOLDERS THAT HOLD"



Straight Shank



Right Hand Offset Shank

Furnished With Cutter and Wrench

> Left Hand Offset Shank



For general description see page 85.

Holders have nose chamfered and are specially heat-treated and hardened.

The cutter-holding channel is unusually accurate and long. It provides an absolutely true and rigid seat for the cutter and assures a chatter-proof tool. No breaking of high speed steel bits.

The Set Screws, made of a fine grade of Alloy Steel, are accurately machined and carefully heat-treated and hardened. They are unusually tough and strong and provide the maximum efficiency in cutter fastening.

The "diamond-point" form in which the High Speed Cutters are furnished requires the minimum of grinding.

Number		1000			LIST PRICE		
Straight	Offset Shank		Offset Shank Holder, Size		Cutter Size,	Cutters Only,	Complete
Shank	Right Hand	Left Hand		Square	High Speed Steel	Tool, with High Speed Cutter	
000-S 00-S 0-S	000-R 00-R 0-R	000-L 00-L 0-L	5/16 x 1/2 x 4 5/16 x 3/4 x 4 1/2 3/8 x 7/8 x 5	3/16 3/16	\$.15 .15	\$ 2.70 2.70 2.85	
1-S 2-S 3-S	1-R 2-R 3-R	1-L 2-L 3-L	1/2 x 1 1/8 x 6 5/8 x 1 3/8 x 7 3/4 x 1 5/8 x 8	1/4 5/16 3/8 7/16	.20 .35 .55	3.25 4.00 5.40	
4-S 5-S 6-S	4-R 5-R 6-R	4-L 5-L 6-L	7/8 x 1 3/4 x 9 1 x 2 x 11 1 1/4 x 2 1/4 x 13	7/16 1/2 5/8 3/4	1.30 2.35 3.85	6.90 9.75 13.50	

WILLIAMS' DROP-HEAD TURNING-TOOL HOLDERS

With Straight and Offset Shanks "THE HOLDERS THAT HOLD"



Straight Shank



Right Hand Offset Shank

Furnished with either type of Cam, Cutter and Wrench

Left Hand Offset Shank



For general description, see page 85.

Designed for use on lathes with clamp-tool rests and low centers, and excellently adapted to shaper and planer work.

The cutter-holding channel is unusually accurate. It provides an absolutely true and rigid seat for the cutter and assures a chatter-proof tool. No breaking of high speed steel bits.

The Cam-fastening is always rapid and positive—the greater the pressure the tighter the lock. It offers full freedom for operation without removal of Holder from tool post, and imposes no obstruction to cutting facilities. Either Hex Head or Headless Cam is furnished; both types are interchangeable.

The "diamond-point" form in which the High Speed Cutters are furnished requires the minimum of grinding.

Hex Head Cam will be furnished, unless otherwise specified.

Solelly.	Number				Height	LIST PRICE			
Straight	Offset	Shank	Holder, Size	Cutter Size,	from Bottom of Shank	Extra Inter- change-	Cutters Only,	Complete Tool, with	
Shank	Right Hand	Left Hand		Square	to Cutter Point	able Cams, Each	High Speed Steel	High Speed Cutter	
0200-S 200-S 201-S 202-S 204-S	0200-R 200-R 201-R 202-R 204-R	0200-L. 200-L 201-L 202-L 204-L	7/16 x 9/16 x 6 9/16 x 11/16 x 6 7/8 3/4 x 7/8 x 7 7/8 7/8 x 1 x 8 7/8 1 1/8 x 1 1/4 x 11	3/16 1/4 5/16 3/8 1/2	9/16 11/16 13/16 15/16 1 3/16	\$.90 .99 1.10 1.22 1.50	\$.15 .20 .35 .55 1.30	\$2.70 2.85 3.25 4.00 6.90	

WILLIAMS' THREADING-TOOL HOLDERS

"THE HOLDERS THAT HOLD"



PATTERN
Furnished with
Finished Cutter and Wrench

FORMED-CUTTER
PATTERN
Furnished with
Finished Cutter and Wrench



For General Description, see page 85

LOCKABLE-SPRING PATTERN

A highly perfected tool for fine and coarse threading, or other Lathe work. The Nut for the Lockable-Spring Head provides for the rigid backing required for heavy cuts; when it is loosened, the Holder becomes a spring-tool for finishing work. It is equally efficient as a Turning-tool. The Cam-fastening is always rapid and positive—the greater the pressure, the tighter the lock.

The cutter, made from High Speed steel, is finished. Each end is ground, the "V" point forming either an angle of 60° for U. S., or 55° for Whitworth Std. threads.

FORMED-CUTTER PATTERN

Williams' Threading-Tools with FORMED CUTTER assure threads that fit perfectly, since in re-sharpening the Cutter, it is necessary to grind its top edge only. Therefore, the point will always retain proper form and angle as originally supplied.

The High Speed Cutter is ground to an included angle of 60° and is backed off for proper clearance. Its rear, flat edge is eccentrically formed; the hardened stop screw, bearing against it, provides positive and accurate adjustment.

	The state of the s	in the ballions on the	LIST	LIST PRICE			
No.	Holder, Size	Cutter, Size Square	Extra Finished Cutter, High Speed	Complete with High Speed Cutter	No.		
	LOC	KABLE-SPRING	PATTERN				
S-50	3/8 x 7/8 x 5 1/4	1/4	\$.45	\$4.15	S-50		
S-51 S-52	1/2 x 1 1/8 x 6 5/8 x 1 3/8 x 7	5/16 3/8	.55 .70	5.00 6.40	S-51 S-52		
	FO	RMED-CUTTER	PATTERN				
C-050	5/16 x 3/4 x 5	Formed	\$2.65	\$4.15	C-050		
C-50	3/8 x 7/8 x 5	Formed	2.65	4.15	C-50		
C-51	1/2 x 1 1/8 x 5 3/4	Formed	3.15	5.00	C-51		
C-52	5/8 x 1 3/8 x 7	Formed	4.15	6.40	C-52		

WILLIAMS' LIGHT BORING-TOOL HOLDERS

FOR SMALL, LIGHT BORING, TURNING, ETC.



Furnished with 2 Finished Bars, 1 Square Cutter and Wrench

This Holder is very handy and economical for tool room use and for all small work — not only in boring small diameters, threading, etc., but also in turning.

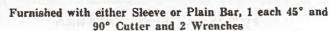
Boring. Each tool will hold a number of sizes of Bars; two, varying 1/8" in diameter, are supplied with each Holder. The solid Bars are High Speed Steel, carefully hardened and ground, ready for use.

Turning. The Holder, will offset shank, is reversible for right and left hand work. A hardened, High Speed Steel square Cutter with ends beveled to a "diamond point" for easy grinding to desired form, is supplied with each tool.

		Wit	th Each Holde	F	LIST	PRICE	14	
No.	Holder, Size Shank	2 Bars High Speed Diamet	Steel,	1 High Speed Square Cutter	Square Cutter Only	Complete Holder, Bars and Cutter	No.	
15 16 17	3/8 x 3/4 x 5 1/2 x 1 x 5 3/4 5/8 x 1 1/4 x 6 3/4	1/8 & 1 3/16 & 5 1/4 & 3	/16	1/4 5/16 3/8	\$.20 .35 .55	\$4.15 5.25 6.75	15 16 17	
STAL LINE	the Parliant was fear the	EXTR	A BORIN	G BARS	Name of the Party	III Die German		
r Holders	Each	1/8 x 4 15 & 16 \$.30	1/16 x 4 1/2 15 to 17 5 .40	1/4 x 5 15 to 17 \$.50	5/16 x 6 15 to 17 \$.60	3/8 x 7 16 & 17 \$.80	7/16 x 8 17 \$1.10	

ADJUSTABLE BORING-TOOL POSTS

FOR MANY SIZES OF BARS

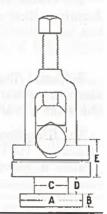


Each Post accommodates a wide range of Bars; commercial sizes of bar steel are adaptable for either Bars or Cutters without machining.

The height of the Bar is easily and quickly adjusted a turn of the Knurled Ring will raise or lower the base on which the Bar rests; tightening the Set Screw in the head of the Post then locks the whole device instantly, giving an extremely rigid tool.

If Post is desired without the Bar, deduct price shown on page 91 for standard size Bar.

Standard size Sleeve Bar will be furnished, unless otherwise specified.



Number	2	3	4	5
Post—Length over all, without Screw	6 5/8	7 5/8	9 1/8	11 1/8
A Diameter	3	3 1/2	4 1/4 7/8	5
B Thickness	5/8	3 1/2 3/4	7/8	1 1/16
"T" Slot Neck:	1 8 10	1 24		0.1/4
C Diameter	3/4	1 3/4 13/16	i	1 1/4
E Cepter Height	1 5/8 3/4 1 13/16	1 7/8 1/2 to 1 1/2	2 3/8	2 1/4 1 1/4 2 3/4
Post Capacity for Bars-Size	1/2 to 1 5/16	1/2 to 1 1/2	5/8 to 1 13/16	3/4 to 2 1/4
Standard Bar-Sise	1 5/16	1 1/2	1 13/16	2 1/4
LIST PRICE—Complete Post: With Sleeve Bar, High Speed Cutters	\$27.00	\$37.50	\$60.00	\$90.00
With Plain Bar, High Speed Cutters	25.50	35.75	58.00	88.50

[†] The "T" Slot Flange and Neck are furnished large to allow for fitting to individual machines. For special finishing to specified dimensions, an extra charge of \$2.00 net, each Post will be made.

Weights, page L.

Bar and Cutter details on page 91.

WILLIAMS' BORING-TOOL HOLDERS

EACH TAKES MANY SIZES OF BARS



Plain Bar

Furnished with either Sleeve or Plain Bar, 1 each 45° and 90° Cutter and 2 Wrenches

With this Holder, encumbering sleeves or bushings are unnecessary for Bars of various sizes; One Holder takes many Bars. Commercial forms of bar steel are adaptable for either Bars or Cutters without machining.

The Sleeve-bar fastening provides for the rapid adjustment of either straight or angular Cutters without the use of extra parts; it has greater strength than others of the same general design.

The Plain Bar provides for use with either Straight or Angular Cutters in the simplest manner possible and is furnished with Headless Set Screws.

Standard size Sleeve Bar will be furnished, unless otherwise specified.

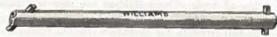
		Holder Capacity	Standard		PRICE te Holder	9
No.	Holder, Size	for Bars, Size Diameter	Bar, Size Diameter	With Plain Bar, High Speed Cutters	With Sleeve Bar, High Speed Cuttera	No.
080 80 81 82 83	5/10 x 3/4 3/8 x 7/8 1/2 x 1 1/8 5/8 x 1 3/8 3/4 x 1 5/8	3/16 to 1/2 1/4 to 5/8 1/4 to 3/4 3/8 to 15/16 1/2 to 1 1/8	1/2 5/8 3/4 15/16 1 1/8	\$4.30 4.30 5.00 6.50 9.60	\$ 4.90 4.90 5.80 7.65 10.85	080 80 81 82 83

BORING-BARS AND CUTTERS

FOR BORING-TOOL HOLDERS AND ADJUSTABLE BORING-TOOL POSTS



Sleeve Bar



Plain Bar

Furnished with Two Cutters and Wrench

Borin	ng-Bars	For U		Cutters	Third of the		LIST PRICE	The later
Approxi	mate Size	Wit	h			r Ca	Comp	ete Bar
Sleeve	Plain	Holders No.	Posta No.	Size Square and Length	For Use at Angles of	Cutters Only, High Speed	Plain, with High Speed Cutters	Sleeve, with High Speed Cutters
1/2 x 75/8	1/2 x 8 1/8	080-83	2-3	3/16 x 1 3/16 x 1 1/2	90° 45°	\$.10 }	\$ 2,40	\$ 3,00
5/8 x 9 1/8	5/8 x 10 1/8	80-83	2-4	3/16 x 1 3/16 x 1 1/2	90° 45°	.10	2,40	3.00
3/4 x 11	3/4 x 12 1/8	81-83	2-5	{ 1/4 x 1 1/4 1/4 x 2	90° 45°	.15	2.95	3.75
15/16 x 13 1/4	15/16 x 14 1/8	82-83	2-5	5/16 x 1 1/2 5/16 x 2 1/2	90° 45°	.24	4.25	5.40
1/8 x 16	1 1/8 x 16 3/4	83	2-5	{ 3/8 x 1 7/8 3/8 x 2	90° 45°	.35	6.25	7.50
5/16 x 19	1 5/16 x 20		2-5	{ 3/8 ± 2 1/8 3/8 ± 3 1/4	90° 45°	.40	9.00	10.50
1/2 x 23 1/4	1 1/2 x 23 1/2		3-5	7/16 x 2 1/4 7/16 x 3 3/8	90° 45°	.60	11.75	13.50
13/16 x 27 1/4	1 13/16 x 28		4-5	{ 1/2 x 2 5/8 1/2 x 4	90° 45°	1.30	17,50	19.50
1/4 x 33	2 1/4 x 34		5	5/8 x 3 1/8 5/8 x 4 3/4	90° 45°	1.70	31.00	34.50

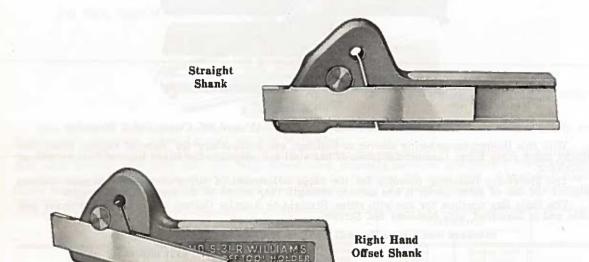
Weights, page L.

Light Boring Bars and Posts on previous page.

WILLIAMS' SPRING CUTTING-OFF TOOL HOLDERS

With Straight and Right Hand Offset Shanks

"THE HOLDERS THAT HOLD"



Furnished with Finished Cutter and Wrench

For General Description, see page 85.

These Spring Tools make comparatively simple all lathe cutting-off work—long thought the hardest of lathe operations. Due to the "goose neck" form of the Holder, the Cutter Blade is relieved of excess pressure; no chattering, no "climbing" of the work on the tool—the real cause of nearly all breakage of cutting-off tools. These Holders are also particularly efficient with automatic feed.

The Cam-fastening is always rapid and positive—the greater the pressure the tighter the lock. It offers full freedom for operation without removal of Holder from tool post.

Cutter Blades are High Speed Steel, hardened and ground ready for use. They are interchangeable in Holders of corresponding size on page 93-A, as explained in following paragraphs.

NOTE: For the convenience of users, the width of Cutter Blades and slot in the Holders for same is being altered. The new Cut-off Blades are interchangeable in other standard Holders.

This change is now effective on Holders with piece number carrying the prefix "N" (New). All other sizes will be altered similarly as the present stock of Holders is exhausted, but Extra Blades of former size to fit old Holders now in use will be continued.

Always be sure to specify the Holder number when ordering Extra Blades. For instance, No. S-21-R for Blade to fit old Holder; No. NS-21-R for Blade to fit new Holder.

Straight Shank Holders will be furnished, unless otherwise specified.

Nu	mber			ligh Speed Steel, ed Size	LIST	PRICE	Number	
Straight Shank	Offaet Shank, Right Hand	Holder, Size	OLD for Original Williams' Holders Only	* NEW Interchangeable in Other Standard Holders	Extra Blade, Finished, High Speed Steel	Complete Holder with Blade, High Speed Steel	Straight Shank	Offset Shank, Right Hand
NS-20 NS-21 NS-22 NS-23	NS-30-RA NS-30-R NS-31-R NS-32-R NS-33-R	3/8 x 13/16 3/8 x 31/32 1/2 x 1 3/16 5/8 x 1 3/8 3/4 x 1 5/8	3/32 x 5/8 1/8 x 3/4 1/8 x 7/8 3/16 x 1	3/32 x .595 3/32 x .595 1/8 x .735 1/8 x .870 3/16 x .940	\$.65 .65 .90 1.30 2.15	\$4.50 4.50 5.40 6.75 9.00	N8-20 N8-21 N8-22 N8-23	NS-30-RA NS-30-R NS-31-R NS-32-R NS-33-R

^{*}New Cutter Blades will not fit old Holders, nor old Blades, new Holders. Weights, page L.

WILLIAMS' CUTTING-OFF AND SIDE-TOOL HOLDERS

For Interchangeable Blades. Straight and Offset Shanks.

"THE HOLDERS THAT HOLD"

Right Hand Straight Shank



Left Hand Offset Shank



Right Hand Offset Shank Furnished with Finished Cutter and Wrench



For General Description, see page 85.

One Holder takes both Cutting-off and Side Blades, providing unique convenience and economy. The Cam-fastening is always rapid and positive—the greater the pressure the tighter the lock. It offers full freedom for operation without removal of Holder from tool post.

The Cutter Blades are High Speed Steel, hardened and ground ready for use. They are interchangeable in Holders of corresponding size on page 92-A, as explained in following paragraphs.

NOTE: For the convenience of users, the width of Cutter Blades and slot in the Holders for same is being altered. The new Cut-off Blades (not Side) are interchangeable in other standard Holders.

This change is now effective on Holders with piece number carrying the prefix "N" (New). All other sizes will be altered similarly as the present stock of Holders is exhausted, but Extra Blades of former size to fit old Holders now in use will be continued.

Always be sure to specify the Holder number when ordering Extra Blades. For instance, No. 20-R for Blade to fit old Holder; No. N-20-R for Blade to fit new Holder.

Cutting-off Blade will be furnished, unless otherwise specified.

	Number			Cutter	Blades, High Sp	eed Steel, Finish	ed Size		LIST	PRICE	
			PART OF	Cutting-Off Blade		Side	Blade	Extra Blade,			plete
Straight Shank Right		Shank	Holder, Size	OLD for Original	* NEW Inter- changeable	OLD for Original	*NEW for New-Style	Finished, High Speed Steel		Holder With Blade, High Speed Steel	
Hand	Right Hand	Left Hand	1000	Williams' Holders Only	in Other Standard Holders	Williams' Holders Only	Williams' Holders "N" Series	Cut- Off	Side	Cut- Off	Side
N-020-R N-20-R	N-030-R N-30-R	N-030-L N-30-L			5/64 x .475 3/32 x .595	1/8 x 1/2 5/32 x 5/8	1/8 x .475 5/32 x .595	\$.60 .65	\$.60 .90	\$2.85 3.00	\$2.85 3.40
N-21-R N-22-R	N-31-R N-32-R		1/2 x 1- 3/16 5/8 x 1- 3/8	1/8 x 3/4 1/8 x 7/8	1/8 x .735 1/8 x .870	3/16 x 3/4 1/4 x 7/8	3/16 x .735 1/4 x .870	1.30	1.40 2.30	3.60 4.50	4.35 6.00
N-23-R N-24-R N-25-R	N-33-R N-34-R N-35-R	34-L		3/16 x 1 3/16 x 1-1/8 1/4 x 1-1/8	3/16 x .940 3/16 x 1.100 1/4 x 1.100	5/16 x 1 3/8 x 1-1/8	5/16 x .940 3/8 x 1.100	2.15 2.90 4.00	3.40 5.00	6.00 7.50 8.60	7.85 10.65

^{*}New Cutter Blades will not fit old Holders, nor old Blades, new Holders. Weights, page L.

WILLIAMS' KNURLING-TOOL HOLDERS

"THE HOLDERS THAT HOLD"



Nos. 00-K to 2-K with Self-centering Head and One Pair of Knurls

Nos. 11-K, 12-K with Revolving Head and Three Pairs of Knurls



For General Description, see page 85

Williams' Knurling Tools are furnished in two designs:-

Nos. 00-K to 2-K, with sturdy, self-centering heads, are each fitted with ONE pair of Knurls for fine, medium, or coarse work—see illustration on opposite page. Unless otherwise specified, "Diamond" Pattern, Medium Knurls will be supplied.

Nos. 11-K and 12-K carry THREE pairs of Knurls for fine, medium and coarse work—see illustration on following page. These are fitted in a revolving head and can be used as desired, without loss of time in changing from one grade of knurling to another.

The Pins are of Tool Steel, carefully tempered.

The Knurls are fully described on next page.

11000			Knurls, S	ize	W7-1-1-4	LIST	PRICE	
No. Holder, Size	Diam.	Face	Hole	Weight Each, Lbs.	Extra Knurls, Pair	Com- plete Tool	No.	
	SELF-CI	ENTERIN	G HEAD	ONE PA	IR OF KN	URLS		
00-K 0-K 1-K 2-K	5/16 x 3/4 x 5 3/8 x 7/8 x 5 1/2 1/2 x 1 1/8 x 6 5/8 5/8 x 1 3/8 x 7 1/2	5/8 5/8 3/4 3/4	3/16 3/16 1/4 1/4	*7/32 *7/32 1/4 1/4	.55 .65 1.90 2.25	\$1.00 1.00 1.15 1.15	\$5.65 6.00 6.75 8.00	00-K 0-K 1-K 2-K
	REVOL	VING HE	AD_TH	REE PAIR	S OF KNU	JRLS		1 6
11-K 12-K	1/2 x 1 1/8 x 6 5/8 5/8 x 1 3/8 x 6 5/8	3/4 3/4	1/4	1/4 1/4	1.90 2.25	1.15 1.15	9.00 10.50	11-K 12-K

*Hole, old diameter 1/4 inch.

KNURLS FOR WILLIAMS' KNURLING-TOOL HOLDERS

"THE HOLDERS THAT HOLD"

DIAMOND PATTERN

STRAIGHT-LINE PATTERN















Coarse 14 Pitch

Medium 21 Pitch

33 Pitch

Coarse 14 Pitch

Medium 21 Pitch

Fine 3 Pitch

Note: "Pitch" means number of teeth per linear inch.













Illustrations above show actual size of Knurling

Williams' Knurls are made to close limits in all respects and, being accurately cut, they assure sharp and perfect teeth in the knurled product. The hole is concentric with and parallel to the cutting face, insuring uniform, clean cut results. All Knurls are made from high grade tool steel and are specially hardened and tempered.

Furnished in pairs to fit standard makes of Knurling Tools and supplied in two Patterns—"Diamond" and "Straight-Line." Three different pitches in each Pattern—Coarse, 14 pitch; Medium, 21 pitch; Fine, 33 pitch; all as illustrated above. When ordering, always specify Pattern and pitch desired.

"Diamond" Pattern, Mcdium (21 pitch) will be furnished, unless otherwise specified.

For	RELIES NEW	Knurl	s, Size		LIST	For	
Knurling Tool No.	Diameter	Thickness	Face	Hole	PRICE Per Pair	Knurling Tool No.	
00-K	5/8	5/16	3/16	*7/32	\$1.00	00-K	
0-K	5/8	5/16	3/16	*7/32	1.00	0-K	
1-K	3/4	3/8	1/4	1/4	1.15	1-K	
2-K	3/4	3/8	1/4	1/4	1.15	2-K	
11-K	3/4	3/8	1/4	1/4	1.15	11-K	
12-K	3/4	3/8	1/4	1/4	1.15	12-K	

^{*}Hole, old diameter 1/4 inch.

WILLIAMS' PLANING-TOOL HOLDERS

"THE HOLDERS THAT HOLD"





The substantial Bolt-fastening and serrated Adjustment Ring

This construction affords most ready release of Cutter for easy adjustment. The serrations in Holder provide maximum number of cutter adjustments.

Furnished with Cutter and Wrench

For General Description, see page 85.



A rugged, substantial and efficient tool on either Lathe or Planer. Because of its numerous angles of adjustment it also makes an excellent Offset Turning Tool.

The construction assures perfect seat and holding qualities for the Cutters; the convex face of Clamp Nut provides uniform locking pressure for Cutters of either square or rectangular form; the numerous serrations in Holder provide for quick, fine and maximum number of Cutter adjustments unequaled in other designs.

The serrated washer, or Adjustment Ring, which sustains the fastening and working strains, is hardened and tempered. Should it wear in prolonged service, a new Ring only is required—not a complete Holder.

	Johnson or well-		restante and	LIST PRICE	Harman Strangers	
No.	Holder, Size	Cutter Size	Extra Adjustment Ring	Cutter Only, High Speed Steel	Complete Holder, High Speed Cutter	No
91	1/2 x 1 x 7	1/4 x 3/8	\$.60	\$.35	\$ 4.65	91
92	5/8 x 1 1/4 x 8 1/2	5/16 x 7/16	.68	.55	6.00	92
93	3/4 x 1 1/2 x 10 1/4	3/8 x 1/2	.83	.80	7.85	93
94	1 x 1 3/4 x 13 1/4	1/2 x 3/4	1.05	1.95	12.40	94
95	1 3/8 x 2 x 16 1/2	5/8 x 7/8	1.50	3.35	21.75	95
96	1 3/4 x 2 3/8 x 19	3/4 x 1	2.25	5.00	39.00	96
97	2 1/8 x 2 3/4 x 22	7/8 x 1 1/8	3.38	8.20	57.00	97

WILLIAMS' LATHE TOOL SETS

"THE HOLDERS THAT HOLD"

High Speed Steel Cutters

Convenient - Efficient - Economical - Superior

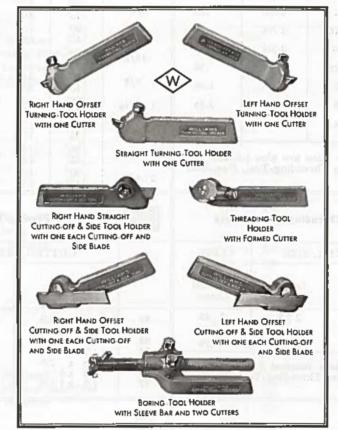
Williams' Holders save all lost time of men and machines waiting for tools. Nearly all tool-grinding time. All blacksmith work. Practically all loss of costly high speed steel.

Six "always ready" Sets illustrated below, provide for complete Lathe service—Turning, Boring, Threading, Cutting-Off and Side work—in a minimum number of tools, unequalled elsewhere—High Speed Cutters and Finished Wrenches are provided throughout.

Williams' Holders are made of special steel, heattreated and hardened. No scoring, burring or breaking down by tool-post screw. Beveled nose permits working in close quarters.

ONE Williams' Holder takes BOTH cutting-off and side blades. A tool that performs both classes of work by the mere substitution of suitable cutters, tells its own story of economy.

Each Williams' Boring Tool takes SIX or more sizes of Bars WITHOUT using bushings. ONE tool holds MANY Bars. Two styles of Bars—"Sleeve" as illustrated and "Plain" at lower price.



Williams' Turning Tools have Large Alloy Steel Scrow—heat-treated, unbreakable. Their accurately broached hole provides rigid seat for cutter—no chatter, no breakage.

Williams' Threading Tools Nos. C-50 and C-51 with Formed Cutter assure threads that fit perfectly, since in resharpening the Cutter, it is necessary to grind its top edge only. The point will always retain the proper form and angle.

Williams' Sleeve Boring-Bar fastening provides for the rapid adjustment of either straight or angular cutters without use of extra parts. It is stronger than others of same general design.

"Always ready" sets of Williams' Tool Holders, with a minimum number of tools, provide for greatest economy and service in lathe work.

			WILI	LIAMS	TOOL	HOLD	ERS I	N SET	S		_11111	
	For	G!	Т	Turning Tools				Cutting-off and Side Tools			Quan-	LIST
Set No.	Approx.	Size	Straight	Offset	Shank		Offset	Shank	Thread-	Boring	tity	PRICE
No.	* Swing Inches	Holder Shank	Shank No.	R. H. No.	L. H. No.	Straight Shank No.	R. H. No.	L. H. No.	No.	No.	Tools in Set	Sets
00 0	7 to 10 10 to 12 14 to 16	5/16 x 3/4 3/8 x 7/8 1/2 x 1-1/8	00-8 0-8 1-8	00-R 0-R 1-R	00-L 0-I, 1-I,	N-020-R N-20-R N-21-R	N-030-R N-30-R N-31-R	N-030-L N-30-L N-31-L	C-50 C-51	080 80 81	7 8 8	\$23.35 29.30 35.55
3 4	16 to 18 18 to 20 24 to 36	5/8 x 1-3/8 3/4 x 1-5/8 7/8 x 1-3/4	2-S 3-S 4-S	2-R 3-R 4-R	2-L 3-L 4-L	N-22-R N-23-R N-24-R	N-32-R N-33-R N-34-R	N-32-L 33-L 34-L	\equiv	82 83	7 7 6	40.00 55.25 58.20

^{*} Be careful to measure the opening in tool-post before ordering Sets. Due to a considerable variation in the proportions of lathes as furnished by different manufacturers, it is impossible to state definitely the "swing" of lathe best adapted to a given size Tool Holder.

WILLIAMS' HIGH SPEED STEEL CUTTERS

FOR WILLIAMS' TOOL HOLDERS

Require minimum of grinding only for use in Holders. All Cutters are hardened.

	For To	arning-Tool	Holders				Fo	r William	s' Bo	ring Ba	rs	
The print is		CUTTER, S	ZE	LI			For		TER	, SIZE		IST
N		uare Le	ngth	Ea Hi Spe	gh	Bar Diam.	Use a		re	Length	E	ach, Iigh peed
00 &	0200 3	3/16 1	7/8	\$.15	1/2	{90 45	3/10	3	1 1/2	\$.10 .12
0 &	200 †1	/4 2	3/8		.20	5/8	{90 45			1 1/2		.10
1 &	201 †5	/16 2	7/8		.35	3/4	(90	0 1/4		1 1/4		.15
2 &	202 †3	3/8	3/8		.55		(45)		R	2 1 1/2	Same	.19
3			3/4		.90	15/1	6 45			2 1/2	77111	.32
		1 1 10	1/8		.30	1 1/8	(90			1 7/8		.35
					.35		(40)			2 1/8		.50
5		A A A A	3/4			1 5/1	45	° 3/8		3 1/4		.55
6	- 8	5/4 5	1/2	3	.85	1 1/2	{90 45			2 1/4 3 3/8		.60 .85
NI						1 13/1	<u> </u>	° 1/2		2 5/8	1	.90
† Cu	tters of thes g when used	e sizes are in Threadin	also sui g-Tool.	itable Nos.	10r S-50	1 13/1	(30			4		1.30
to S-5	2.					2 1/4	\ \begin{pmatrix} \{90\\45\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\			3 1/8 4 3/4		1.70 2.35
	For	Threading-	Fool Hole	ders			I	or Planir	ıg-Too	ol Holde	rs	
	CUT	TER, SIZE	T	LIS			C	UTTER,	SIZE			
No.	Square	Leng	th	Eac ligh S Finis Cut	peed hed	No.	F	lat	Le	ength	E	ST ach, Speed
S-50	1/4	2 3/3	3	\$.4	45	91	1/4 x	3/8	2	1/2	•	.35
S-51	5/16	2 7/			55	92	5/16 x	7/16	3		•	.55
S-52	3/8	3 3/	3		70	93 94	3/8 >	1/2 3/4		1/2 1/4	1	.80 1.95
for tu	ning-Tool Cu irning work ible above.	tters marke in Thread	ed † are ng-Tool	Hole	able ders.	95 96 97	5/8 × 3/4 ×		5 6 7	C SE	3 5	3.35 5.00 3.20
	Bevel For	Cutting-Off	Tool H	olden			Heavy	Bevel Fo	Side	-Tool H	older	8
	Cutter Blade inished	*NEW C	utter Bla ished	de	LIST Each,		Cutter Blad inished	e *N]		utter Bla ished	ıde	LIST Each
No.	Size	No.	Size	3	High Speed	No.	Size	Ne	D.	Siz	e	High Speed
020-030	5/64 x 1/2	N-020-N-030	5/64 x	.475	\$.60	020-030	1/8 x 1	/2 N·020-	N-030	1/8 x	.475	\$.60
20- 30	3/32 x 5/8	N20- N30	3/32 x	.595	.65	20- 30				5/32 x		.90
21- 31	1/8 x 3/4	N21- N31			.90	21- 31		' 1		3/16 x		1.40
22- 32	1/8 x 7/8	N22- N32 N23- N33			1.30 2.15	22- 32				1/4 x		2.30
23- 33 24- 34	3/16 x 1 3/16 x 1-1/8	N23- N33 N24- N34			2.90	23- 33	5/16 x 1	The second secon		5/16 x		3.40
	1/4 x 1-1/8		-1			24- 34	3/8 x 1-1	10 3104	3.54.4	3/8 x		5.00

^{*} New Cutter Blades will not fit old Holders, nor old Blades, new Holders.

WILLIAMS' HIGH SPEED STEEL

IN 3 FEET LENGTES

Heat treatment instructions for Williams' High Speed Ton Holder Steel, is tell below, will be furnished with each shipment of these bars.

Squares, for Use with		TATE PARTICIE
	Size, Square	3 Feet And 1
Williams' Turning, Boring and Threading-Tool Holders	3/16 1/4 5/16 3/8	\$ 1.40 2.25 3.40 4.80
A Dolders	7/16 1/2 5/8 3/4	6.30 8.00 12.50 17.80
Flats, for Use with		
meringmi larestam we estat mis	Size, Flat Section	LIST PRICE 3 Feet Lengths Annealed High Speed
Williams'	1/4 x 3/8 5/16 x 7/16	\$ 3.50 4.80
Planing-Tool Holders	3/8 x 1/2 1/2 x 3/4	6.60 12.50
	5/8 x 7/8 3/4 x I 7/8 x I 1/8	17.50 23.25 30,70
Bevels, (Cutting-off) for Use with		1
Develo, (Cutting-on) for Ose with	†Size Section for Cutting-off Blade	LIST PRICE 3 Feet Lengths Annealed High Speed
Williams' Cutting-off and Side-Tool Holders	5/64 x 1/2 3/32 x 5/8 1/8 x 3/4	\$ 2.60 2.70 4.00
Todads	1/8 x 7/8 3/16 x 1 3/16 x 1 1/8	4.35 6.75 7.50
	1/4 x 1 1/8	10.40
Heavy (Side Tool) Bevels, for Use w	†Size Section for Side Blade	LIST PRICE 3 Feet Lengths Annealed High Speed
Williams' Cutting-off and Side-Tool	1/8 x 1/2 5/32 x 5/8	\$ 2.80 3.70
Holders	3/16 x 3/4 1/4 x 7/8	4.70 7.00
<i>Y22</i>	5/16 x 1 3/8 x 1 1/8	9.10 12.45

[†] Bevel Steel for Cutting-off and Side Blades requires grinding on edges to fit Williams' Holders exactly. Finished sizes are given.



WILLIAMS' +"VULCAN" DROP-FORGED LATHE DOGS

WITH BENT TAIL AND ONE SCREW



Safety Dog and Screw



* Furnished with Interchangeable Screws, either Safety or Non-Safety



Non-Safety Dog with Square Hd. Screw

Safety-for-the-operator and better balance when on the lathe are material improvements which have been attained in this design.

The Screws are of special steel, hardened and tempered, and are threaded U. S. Standard, except that those above 1 inch diameter have eight threads per inch. They are supplied in two types, Safety and Non-Safety, as illustrated. See description, opposite page.

(Continued on opposite page)

Dogs with Safety Screws will be supplied, unless otherwise specified.

	Water India			SCI	REWS	paris, su	LERDY	LIST	PRICE	
	Section 1	Sc	quare Head			Safety			-1	
No.	Capacity	Siz	e	T:-4	S	ize	Tint	Safety Dog	Dog with	No.
		Diam.	Length Under Head	List Price, Each	Diam.	Extreme Length	List Price, Each	Wrench, Extra	Either Screw	
* i	3/8	7/16	1	\$.25	7/16	5/8	\$.20	\$.12	†\$ 1.00	1 2 3
* 2	1/2	9/16	1 1/4	.30	9/16	13/16	.24	.14	† 1.10	
* 3	3/4	5/8	1 5/8	.37	5/8	1 1/16	.30	.16	† 1.20	
* 4	1	5/8	2	.40	5/8	1 1/4	.36	.16	† 1.40	4
* 5	1 1/4	3/4	2 1/4	.55	3/4	1 3/8	.42	.20	† 1.70	5
* 6	1 1/2	7/8	2 7/16	.75	7/8	1 11/16	.60	.24	† 2.00	6
* 7	1 3/4	7/8	2 7/16	.75	7/8	1 11/16	.60	.24	† 2.40	7
* 8	2	1	2 3/4	.95	1	1 7/8	.72	.30	† 2.80	8
* 9	2 1/2	1 1/8	3	1.15	1 1/8	2	.86	.38	† 3.60	9
*10	3	1 1/4	3 1/4	1.35	1 1/4	2 1/8	1.04	.48	† 4.60	10
11	3 1/2	7/8	3 1/2	.64	1 3/8	2 1/2	1.26	.60	† 6.00	11
12	4	7/8	3 3/4	.70	1 1/2	2 5/8	1.50	.74	† 9.00	12
*13	5	1 5/8	4 1/2	2.25	1 5/8	3 3/8	1.80	.90	† 16.00	13

[†] Unless otherwise specified, a Wrench will be supplied with Safety Dogs at extra price stated in table.

+ REGISTERED TRADE MARK

Weights, pages L and M.

Square Hd. Screws

WILLIAMS' +"VULCAN" DROP-FORGED HEAVY SERVICE LATHE DOGS

WITH BENT TAIL AND TWO SCREWS



Safety Dog and Screws

(Continued from opposite page)

SCREWS. For the convenience of users and to permit jobbers to carry a reduced stock of Dogs, the size (diam. and thread) of Non-Safety Screws will be the same as for Safety Screws in corresponding Dogs. In other words, the two types of Screws can be interchanged. Consequently, if an assortment of Dogs complete with Safety Screws is carried, and also an assortment of extra Non-Safety Screws, the latter can be readily substituted at any time. This change is already effective in Dogs marked * in the tables. All other sizes of single and double-screw Dogs will be altered similarly as rapidly as present stock of Dogs with Non-Safety Screws is exhausted.

When ordering extra Screws, please state whether Safety or Non-Safety type is wanted; if latter, specify also diam. of screw.

Dogs with Safety Screws will be supplied, unless otherwise specified.

				SCR	EWS			LIST	PRICE	
		8	quare Hea	d	10.0	Safety	L	399	T Ax	
No.	Capacity	Si	ize	T 2-4	S	ize	Tin	Safety Dog	Dog with	No.
45		Diam.	Length Under Head	List Price, Each	Diam.	Extreme Length	List Price, Each	Wrench, Extra	Either Screw	,
112 113 114	4 5 6	7/8 1 5/8 1 5/8	3 3/4 4 1/2 4 1/2	\$.70 2.25 2.25	1 1/2 1 5/8 1 5/8	2 5/8 3 3/8 3 3/8	\$1.50 1.80 1.80	\$.74 .90 .90	†\$16.00 † 24.00 † 34.00	112 113 114

[†] Unless otherwise specified, a Wrench will be supplied with Safety Dogs at extra price stated in table.

⁺ REGISTERED TRADE MARK

WILLIAMS TORKS TORKS

WILLIAMS' +"VULCAN" DROP-FORGED LATHE DOGS

WITH STRAIGHT TAIL AND ONE SCREW



Safety Dog and Screw



* Furnished with Interchangeable Screws, either Safety or Non-Safety



Non-Safety Dog with Square Hd. Screws

Safety-for-the-operator and better balance when on the lathe are material improvements which have been attained in this design.

The Screws are of special steel, hardened and tempered, and are threaded U.S. Standard, except that those above 1 inch diameter have eight threads per inch. They are supplied in two types, Safety and Non-Safety, as illustrated. See description, opposite page.

(Continued on opposite page)

Dogs with Safety Screws will be supplied, unless otherwise specified.

	UA meh			SCI	REWS	tion when a	100	LIST	PRICE	11.3
	hosson	Sc	quare Head	mm ba	vlimet ()	Safety	Ulas	unt train	Maria 1	498
No.	Capacity	Siz	ze	T	S	ize	Tink	Safety Dog	Dog with	No
della	7.116.1	Diam.	Length Under Head	List Price, each	Diam.	Extreme Length	List Price, each	Wrench, extra	either Screw	124
* 21 * 22 * 23	3/8 1/2 3/4	7/16 9/16 5/8	1 1 1/4 1 5/8	\$.25 .30 .37	7/16 9/16 5/8	5/8 13/16 1 1/16	\$.20 .24 .30	\$.12 .14 .16	\$ 1.00 † 1.10 † 1.20	21 22 23
* 24 * 25 * 26 * 27	1 1 1/4 1 1/2 1 3/4	5/8 3/4 7/8 7/8	2 2 1/4 2 7/16 2 7/16	.40 .55 .75	5/8 3/4 7/8 7/8	1 1/4 1 3/8 1 11/16 1 11/16	.36 .42 .60 .60	.16 .20 .24 .24	† 1.40 † 1.70 † 2.00 † 2.40	24 25 26 27
* 28 * 29 * 30	2 2 1/2 3	1 1 1/8 1 1/4	2 3/4 3 3 1/4	.95 1.15 1.35	1 1 1/8 1 1/4	1 7/8 2 2 1/8	.72 .86 1.04	.30 .38 .48	† 2.80 † 3.60 † 4.60	28 29 30
31 32 * 33	3 1/2 4 5	7/8 7/8 1 5/8	3 1/2 3 3/4 4 1/2	.64 .70 2,25	1 3/8 1 1/2 1 5/8	2 1/2 2 5/8 3 3/8	1.26 1.50 1.80	.60 .74 .90	† 6.00 † 9.00 † 16.00	31 32 33

[†] Unless otherwise specified, a Wrench will be supplied with Safety Dogs at extra price stated in table.

+ REGISTERED TRADE MARK

Weights, page M.

WILLIAMS' +"VULCAN" DROP-FORGED HEAVY SERVICE LATHE DOGS

WITH STRAIGHT TAIL AND TWO SCREWS



Non-Safety Dog with Square Hd. Screw



* Furnished with Interchangeable Screws, either Safety or Non-Safety

Safety Dog and Screws

(Continued from opposite page)

SCREWS. For the convenience of users and to permit jobbers to carry a reduced stock of Dogs, the size (diam. and thread) of Non-Safety Screws will be the same as for Safety Screws in corresponding Dogs. In other words, the two types of Screws can be interchanged. Consequently, if an assortment of Dogs complete with Safety Screws is carried, and also an assortment of extra Non-Safety Screws, the latter can be readily substituted at any time. This change is already effective in Dogs Nos. 21, 22, 23, 24, 25, 26, 28 and 29, marked * in table on opposite page. All other sizes of single and double screw Dogs will be altered similarly as rapidly as present stock of Dogs with Non-Safety Screws is exhausted.

When ordering extra Screws, please state whether Safety or Non-Safety type is wanted; if latter, specify also diam. of screw.

Dogs with Safety Screws will be supplied, unless otherwise specified.

		0.1100		SCR	EWS			LIST	PRICE	
		8	quare Hea	d	15,000	Safety				
No.	Capacity	Si	ze	T	S	ize	Tra	Safety Dog	Dog with	No
-		Diam.	Length Under Head	List Price, Each	Diam.	Extreme Length	List Price, Each	Wrench, Extra	either Screw	V
132 * 133 * 134	4 5 6	7/8 1 5/8 1 5/8	3 3/4 4 1/2 4 1/2	\$.70 2.25 2.25	1 1/2 1 5/8 1 5/8	2 5/8 3 3/8 3 3/8	\$1.50 1.80 1.80	\$.74 .90 .90	†\$16.00 † 24.00 † 34.00	132 133 134

[†] Unless otherwise specified, a Wrench will be supplied with Safety Dogs at extra price stated in table.

+ REGISTERED TRADE MARK

Weights, page M.

WILLIAMS' +"VULCAN" DROP-FORGED MILLING MACHINE DOGS

With Flat, Bent Tail



These are designed for taper work carried between centers on milling machines, the flat tail works in the head-slot without the back-lash unavoidable in Dogs with taper tail. They serve also as a heavy pattern Lathe Dog.

The heads are made of sufficient size to permit re-tapping for one or two larger sizes of screws as the threads wear.

The Screws, threaded U. S. Standard, are made of a special grade of steel and are hardened and tempered.

	A SAME ASSESSED.	Ser	ew	LIST	PRICE	
Number	Capacity	Diameter	Length Under Head	Extra Screws, Each	Dog Complete	Number
42	1/2	3/8	1 1/4	\$.20	\$1.10	42
43	3/4	7/16	1 5/8	.24	1.20	43
44	1 1/4	1/2	2	.30	1.40	44
45		1/2	2 1/4	.32	1.70	45
46	1 1/2	9/16	2 3/8	.36	2.00	46
47	1 3/4	5/8	2 1/2	.40	2.40	47
48	2	5/8	2 7/8	.40	2.80	48

⁺ REGISTERED TRADE MARK

WILLIAMS' +"VULCAN" DROP-FORGED CLAMP LATHE DOGS



These are drop-forged from a strong, tough grade of carefully selected steel and are heat-treated after forging to increase further their strength and reduce the liability of springing.

The Screws, threaded U. S. Standard, are made of a special grade of steel, and are hardened and tempered. The Nuts are case-hardened. Extra Screws and Nuts carried in stock.

The Nuts furnish ready means of arrangement for the minimum projection of Screws beyond the body of Dog and thus lessen the danger to the operator when tool is in use.

	Сара	ıcity	Ser	ews	LIST	Market
Number	Maximum Opening	Distance Between Screws	Diameter	Length Under Head	PRICE, Dog Complete	Number
61	1 5/8	1 3/4	5/16	2 3/4	\$3.00	61
62	1 7/8	2 1/4	3/8	3 5/16	4.00	62
63	2 1/2	2 3/4	7/16	4 1/4	5.00	63
64	3 1/4	3 1/2	1/2	5 3/8	7.00	64

⁺ REGISTERED TRADE MARK

WILLIAMS' +"VULCAN" DROP-FORGED HEAVY SERVICE "C" CLAMPS



These are drop-forged from a strong, tough grade of carefully selected steel. Specially heat-treated to increase further their strength and reduce the liability of springing, they are the strongest "C" Clamps on the market.

The Screws, threaded U. S. Standard, are made of a special grade of steel and are hardened and tempered.

With Long Screws the minimum capacity of all Clamps will be 0.

Clamps with Standard Screws will be furnished, unless otherwise specified.

	Capa	acity		Extr		G. 1	1.0		LIST	PRICE	Land.
		Min.	Depth of Throat	Dimer of B		Standar	d Screw	Extra S	crews	Clamps Com-	
No.	Max.	With Std. Screw	Center of Screw	Length	Width	Diam.	Length Under Head	Standard Each	Long Each	plete with Either Screw	No.
0 1 1 1/2	3/4 1 1/4 1 3/4	0 0 11/16	3/4 1 1/8 1 1/2	2 1/4 3 1/4 4 1/4	2 2 3/4 3 5/8	5/16 3/8 1/2	1 1/2 2 1/4 2 1/4	\$.20 .24 .28	\$.80	\$ 1.00 1.50 2.50	0 1 1 1/2
2 3 4	2 1/4 3 1/4 4 1/2	7/8 1 5/16 2	1 3/4 2 3/8 2 3/4	5 1/2 7 1/4 8 7/8	4 1/2 5 3/4 6 1/2	5/8 3/4 7/8	2 7/8 3 3/4 4 1/2	.40 .56 .76	1.16 1.56 2.00	3.50 5.00 6.50	2 3 4
5 6 8	5 1/2 6 1/2 8 1/2	2 1/2 3 1/16 4 1/4	3 1/8 3 3/8 3 3/4	10 3/8 12 14 3/8	7 7 7/8 8 1/2	7/8 1 1 1/8	5 3/8 5 7/8 7	1.00 1.30 1.70	2.50 3.10 4.20	8.00 10.00 14.00	5 6 8
10 12	10 1/2 12 1/2	6 3/8 7 5/8	4 1/8 4 1/2	16 7/8 19 3/8	9 9 3/4	1 1/8 1 1/4	7 8	1.70 2.40	5.10 7.20	19.00 25.00	10 12

Weights, page M.

+ REGISTERED TRADE MARK

WILLIAMS' +"AGRIPPA" DROP-FORGED GENERAL SERVICE "C" CLAMPS



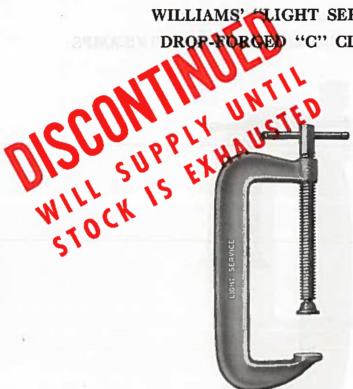
The design of these lighter Clamps enables them to provide the service formerly rendered by the heavier and clumsier steel clamps made by other processes. They are dropforged from a special grade of strong, tough steel and are heat-treated. This process increases still further their strength and reduces any liability of springing.

The Screws, fitted with adjustable handle, are made of special steel, hardened and tempered; threaded U. S. Standard. The Swivels are drop-forged.

	Cap	acity	Depth of	Extr		S	erew	Si		LIS	ST PRI	CE	-
			Throat	of B				Har	idle	Extra	I		
No.	Max.	Min.	Center of Screw	Length	Width	Diam.	Length under Hd. inc. Swivel	Diam.	Lgth.	Screw, Handle and Swivel	Extra Swivel Only	Clamp Complete	No.
103 104 106 108 110	3 4 6 8 10	0 0 2 4 6	2 2 3/8 2 1/2 2 5/8 2 3/4	6 7/8 8 1/4 10 3/8 12 1/2 14 5/8	4 3/8 5 1/8 5 3/8 5 1/2 5 3/4	5/8 3/4 3/4 3/4 3/4	5 5/8 6 7/8 6 7/8 6 7/8 6 7/8	5/16 3/8 3/8 3/8 -3/8 3/8	5 1/2 7 7 7 7	\$1.20 1.40 1.40 1.40 1.40	\$.40 .50 .50 .50 .50	\$ 4.00 4.50 5.50 6.50 7.50	103 104 106 108 110
112 115 118	12 15 18	8 10 13	2 7/8 3 1/16 3 1/4	16,7/8 20 1/4 23 1/2	6 6 1/2 7	3/4 7/8 7/8	6 7/8 8 1/8 8 1/8	3/8 7/16 7/16	7 8 8	1.40 2.40 2.40	.50 .60 .60	8.50 11.00 14.00	112 115 118

⁺ REGISTERED TRADE MARK

WILLIAMS' LIGHT SERVICE" 'C" CLAMPS



Drop-forged from specially selected steel and heat-treated to increase their strength and to reduce the liability of springing. Their design is best adapted for use in the various wood and metal working fields which do not demand the extremes of strength and service for which "Vulcan" and "Agrippa" Clamps provide. They take the place of tools less dependable, yet frequently more costly.

The Screws are made from tough, wrought steel and threaded especially for strength and rapid adjustment. Furnished with wrought steel Swivel, as illustrated.

	Capa	nitar	Depth	Extr Dimer		S	rew	L	IST PRI	CE	
No.	Cape	city	Throat from	of B				Screw.	Extra		No.
140.	Max.	Min.	Center of Screw	Length	Width	Diam.	Length Over All	Handle and Swivel	Swivel Only	Clamps Complete	110.
502 503 504	2 3 4	0 0	1 3/4 2 2 3/8	4 3/8 5 1/2 6 7/8	3 1/4 3 5/8 4 3/8	1/2 1/2 5/8	4 3/8 5 3/8 7	\$.60 .70 .80	\$.10 .10 .15	\$1.50 1.80 2.20	502 503 504
506 508 510 512	6 8 10 12	0 2 3 4	3 3 3/8 3 3/4 4	9 3/8 11 7/8 14 1/8 16 3/8	5 1/4 5 7/8 6 3/8 6 7/8	5/8 3/4 3/4 13/16	8 1/4 10 11 12 1/2	1.00 1.20 1.50 2.00	.15 .20 .20 .30	3.00 4.00 5.00 6.50	506 508 510 512

A special clamp No. 444, 4" capacity, with throat 1 1/2" deep, can be furnished; details on request. Weights, page M.

WILLIAMS' DEEP THROAT "BODY BUILDERS"

DROP-FORGED "C" CLAMPS

FOR LIGHT DUTY

TWO STYLES-STANDARD AND SPATTER-RESISTING



Standard Nos. 402 to 412



Spatter-Resisting Nos. 402-S to 412-S

Especially designed for use where the clearance provided by a deep throat is required, as in body building, welding, wood working, etc. Drop-forged from an unusually strong special steel and heat-treated for maximum strength, they combine dependable strength with minimum weight. Finished in two styles:—

Standard for body-builders, woodworkers and kindred trades. All parts are shot-blasted.

Spatter-Resisting for welding, completely Cadmium-plated to resist the adherence of welding spatter to the body, swivel and screw.

The Screws are made from tough, wrought steel, heat-treated and threaded especially for strength and rapid adjustment. Furnished with wrought steel Swivel, as illustrated.

Standard Clamps will be furnished unless otherwise specified.

		-0.		Depth	Extr			0.1				LIST	PRICI	Ξ		
	No.	Capa		of Throat	of B		S	crew		Sta	ndard		S	patter-	Resist	ing
Std.	Spat- ter Resist- ing	Max.		from Center of Screw	Length	Width	Dia.	Length Over All	No.		Swivel	Clamps Com- plete	No.	Screw, and Swivel	Swivel	Clampa Com- plete
402 403 404		2 3 4	0 0 0	2 2 3/8 2 3/4	4 7/8 6 1/8 7 5/8	3 3/4 4 1/8 4 3/4	1/2	4 3/8 5 3/8 7	402 403 404		\$.10 .10 .15	\$1.50 1.80 2,20	402-S 403-S 404-S	1.10	\$.15 .15 .20	\$1.80 2.25 2.90
408 410	406-S 408-S 410-S 412-S	6 8 10 12	0 2 3 4	3 5/8 4 1/2 5 3/8 5 3/4	10 1/4 12 3/4 15 1/4 18	6 7 8 1/8 9 3/8		8 1/4 10 11 12 1/2	406 408 410 412	1.20 1.50	.15 .20 .20 .30	4.00 5.00	406-S 408-S 410-S 412-S	1.85 2.10	.20 .25 .25 .35	3.75 4.75 6.00 7.50

A special clamp No. 444, 4" capacity, with throat 1 1/2" deep, can be furnished; details on request. Weights, page M.

WILLIAMS' +"VULCAN" DROP-FORGED TOOL-MAKERS' "C" CLAMPS



With Plain Screw



With Swivel Screw

These Clamps are drop-forged from a strong, tough grade of steel and are heat-treated after forging to increase further their strength and reduce the liability of springing.

The Screws, with wings formed to permit use of lever, are supplied in two styles—Swivel and Plain. They are drop-forged from a special grade of steel and are hardened and tempered; threaded U. S. Standard.

Clamp bodies are shot-blasted; screws, black.

Clamps with Swivel Screw will be furnished, unless otherwise specified.

	Cap	acity		Extr Dimer		S	crew	L	IST PR	ICE	
No.	Max.	Min.	Depth of Throat	Length	Width	Diam.	Length	Extra Screw Only	Extra Swivel Only	Clamp Complete	No.
			11	WITH	I PLAIN	SCREW					
201 202 203 204	1 2 3 4 1/4	0 5/16 11/16 1 3/16	11/16 13/16 15/16 1 1/8	2 1/8 3 3/8 4 1/2 6 3/8	1 1/2 1 7/8 2 1/8 2 1/2	5/16 3/8 3/8 3/8 7/16	1 11/16 2 7/16 3 3/16 4 1/8	\$.40 .50 .60 .80		\$1.00 1.30 1.70 2.50	201 202 203 204
	TAY I			WITH	SWIVE	SCREV	v	The state of	1	1.16.11	riar
201 202 203 204	3/4 1 3/4 2 3/4 4	0 5/16 11/16 1 3/16	11/16 13/16 15/16 1 1/8	2 1/8 3 3/8 4 1/2 6 3/8	1 1/2 1 7/8 2 1/8 2 1/2	5/16 3/8 3/8 7/16	1 11/16 2 7/16 3 3/16 4 1/8	\$.90 1.00 1.20 1.50	\$.35 .35 .35 .50	\$1.50 1.80 2.30 3.20	201 202 203 204

^{*} REGISTERED TRADE MARK

WILLIAMS' +"VULCAN" DROP-FORGED MACHINISTS' CLAMPS



These Clamps are drop-forged from a strong, tough grade of carefully selected steel; all are heat-treated to increase still further their strength and to reduce the liability of springing.

The knurled portion of the hardened and tempered Screws permits rapid and easy adjustment.

The edges of the jaws are ground bright, thus adding to the appearance of the Clamp.

When ordering extra Screws specify whether for end or center; lengths given are under-head dimensions and prices are for each of either screw.

Each Clamp is packed in a box for convenient shelving.

	Capa	city		Se	rews		LIST	PRICE	
No.	Maxi-	Length Jaw	E	nd	C	enter	Extra	Complete	No.
	mum Opening	from Screw	Diam.	Length	Diam.	Length	Screws Each	Complete	
301 302	1 1/4 2 1/4	1 3/4 2 1/4	5/16 3/8	2 1/8 3 1/4	5/16 3/8	2 5/8 3 15/16	\$.50 .70	\$3.00 4.00	301 302
303 304	3 1/4 4 1/4	2 3/4 3 1/4	7/16 1/2	4 5/8 5 3/4	7/16 1/2	5 1/4 6 1/2	1.00	5.00 6.00	303 304

⁺ REGISTERED TRADE MARK

SUPERIOR DROP-FORGINGS



AND DROP-FORGED TOOLS

WILLIAMS' +"VULCAN" DROP-FORGED STRAP CLAMPS













Plain Slot

Adjustable Step

Goose Neck

Finger, Double End

Finger, Single End

"U" Pattern

These forgings are made from a strong, tough grade of carefully selected steel and are heat-treated after forging to increase their strength and stiffness.

On Planer, Lathe, Drill Press, Milling and Boring Machine work they are time-saving and effective—far more efficient than any make-shift clamp.

Because of draft or taper on forgings, minimum dimensions of slot are given.

PLAIN SLOT PATTERN

		Wit	ith	Thic	kness	Slot; Min. I	Dimensions	LIST	
No.	Longth	Ends	Center	Ends	Center	Length	Width	PRICE	No.
54 56 58 59	4 6 8 10	1 3/16 1 1/4 1 1/2 1 3/4	1 5/8 1 3/4 2 1/8 2 1/2	1/2 9/16 3/4 15/16	3/4 7/8 1 1/8 1 3/8	1 3/8 2 1/16 2 13/16 3 11/16	11/16 11/16 13/16 15/16	\$.60 1.00 1.70 2.80	54 56 58 59

ADJUSTABLE STEP PATTERN

		Wi	dth	Thick	ness	Slot; Min. D	imensions	Ser	ews	LIST	PRICE	
No.	Length	Enda	Center	Ends	Center	Length	Width	Diam.	Length Under Head	Extra Screws, each	Complete Clamps, each	No.
54A 56A 58A 59A	4 6 8 10	1 3/16 1 1/4 1 1/2 1 3/4	1 5/8 1 3/4 2 1/8 2 1/2	1/2 9/16 3/4 15/16	3/4 7/8 1 1/8 1 3/8	1 3/8 2 1/16 2 13/16 3 11/16	11/16 11/16 13/16 15/16	1/2 5/8 3/4 7/8	1 1/4 1 1/2 1 3/4 2 1/8	\$.28 .36 .50 .70	\$1.10 1.70 2.60 4.00	54A 56A 58A 59A

GOOSE NECK PATTERN

		Wi	dth	Thickne	85	Slot; Min.	Dimensions	Neck	LIST	
No.	Length	Ends	Center	Ends	Center	Length	Width	Offset	PRICE	No.
74 76 78	4 6 8	1 3/16 1 1/4 1 1/2	1 5/8 1 3/4 2 1/8	3/8 & 1/2 7/16 & 9/16 9/16 & 3/4	3/4 7/8 1 1/8	15/16 1 11/16 2 7/16	11/16 11/16 13/16	13/16 15/16 1 1/8	\$.60 1.00 1.70	74 76 78

FINGER PATTERN, DOUBLE END

No.	Length	Width Center	Thickness Center	Min. Diameter Hole	Finger Dimensions	LIST PRICE	No.
30	3	1 1/2	5/8	11/16	1/2 x 1/2	\$.40	30
35	3 1/2	1 5/8	3/4	11/16	5/8 x 5/8	.50	35
40	4	1 13/16	7/8	13/16	3/4 x 3/4	.70	40

FINGER PATTERN, SINGLE END

		Wi	dth	Thie	ckness	Slot; Min. I	imensions	Finger	LIST	
No	Length	Flat End	Center	Flat End	Center	Length	Width	Dimensions	PRICE	No.
44 46 48	4 6 8	1 3/16 1 1/4 1 1/2	1 5/8 1 3/4 2 1/8	7/16 1/2 5/8	3/4 7/8 1 1/8	1 3/8 1 15/16 2 9/16	11/16 11/16 13/16	1/2 x 1/2 5/8 x 5/8 3/4 x 3/4	\$.60 1.00 1.70	44 46 48

"U" PATTERN

		Maximum	1	Slot; Min.	Dimensions	Finger	LIST	
No.	Length	Width	Thickness	Length	Width	Dimensions	PRICE	No.
64 66 68	4 1/2 6 5/8 8 3/4	1 3/4 2 2 1/2	3/4 7/8 1 1/8	3 1/2 5 1/2 7 3/8	11/16 11/16 13/16	1/2 x 1/2 5/8 x 5/8 3/4 x 3/4	\$.60 1.00 1.70	64 66 68

Weights, page M.

FREGISTERED TRADE MARK

WILLIAMS' + "VULCAN" MACHINE HANDLE FORGINGS

UNFINISHED

With Smooth, Planished Surface

BALL PATTERN



Number	00	0	1	2	3	4	5	6	7
Extreme Length	2 1/2 11/16 5/16	2 1/4 1/2 3/4 11/32	2 3/4 5/8 1 13/32	3 1/4 3/4 1 1/8 15/32	3 7/8 7/8 1 1/4 15/32	4 1/2 1 1 1/2 17/32	5 1/8 1 1/8 1 7/8 1 19/32	5 7/8 1 1/4 2 11/16	6 5/8 1 1/2 2 1/8 3/4
LIST PRICE	\$.21	\$.21	\$.23	\$.29	\$.36	\$.46	\$.57	\$.69	\$.84

CONE PATTERN



	Number	11	13	15	16
Extreme Le	ngth	3 1/2	4 1/2	5 1/2	6
Standard Le	ngth, Shank	1/2	3/4	7/8	1 1/8
Maximum I	ength, Shank	11/16	1 1/8	1 3/8	1 1/2
Diameter, S.	hank	. 3/8	7/16	1/2	9/16
LIST PRIC	E	\$.29	\$.46	\$.57	\$.69

⁺ REGISTERED TRADE MARK

WILLIAMS' +"VULCAN" DROP-FORGED BALANCE HANDLES



Unfinished are plain forgings without any hole in hub.

Broached have holes finished, but are otherwise plain forgings.

Finished are broached, ground, polished, case-hardened all over and lacquered to prevent rusting.

The broached openings are made with corners slightly rounded to prevent breakage and a slight clearance is provided.

Holes are regularly finished to standard sizes given below but each forging admits of broaching to the maximum dimensions stated in table. Smaller openings than standard and special sizes can be broached to order. Handles can also be supplied with round holes in hub; details on application.

		Length		Н	ub		e Hole, roached	TO 11	L	IST PRIC	E	
No.	C Hub to C Handle	Ex- treme	Handle Above Arm	Diam.	Length	Stand- ard in Stock	Maxi- mum to Order	Ball, Diam.	Unfin- ished	Broach- ed	Fin- ished	No.
512 516 ‡520	1 1/4 1 5/8 2	3 5/16 4 5	1 15/16 2 1/4 2 5/8	7/8 7/8	3/4 7/8 15/16	7/16 7/16 1/2	1/2 1/2 5/8	7/8 1 1/4 1 1/4	\$.79 .87 .96	\$1.32 1.40 1.49	\$2.30 2.45 2.65	512 516 ‡520
‡522 ‡525 529	2 1/4 2 1/2 2 7/8	5 1/2 6 7	2 3/4 2 13/16 3 5/16	1 1/4 1 1/4 1 1/4	1 1 1/8 1 1/4	1/2 5/8 5/8	13/16 13/16 13/16	1 3/8 1 7/16 1 1/2	1.05 1.23 1.50	1.58 1.85 2.10	2.90 3.30 3.85	‡522 ‡525 529
434 439	3 3/8 3 7/8	8	3 7/16 3 1/2	†1 1/2 †1 5/8	7/8 1 1/16	5/8 5/8	3/4 3/4	1 3/4 1 3/4	2.10 2.65	2.70 3.25	4.90 5.90	434 439

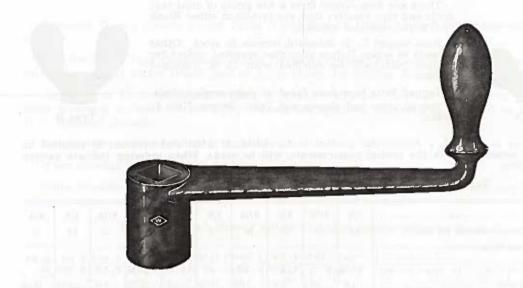
[‡] Handle cone-shaped; see Crank Handle cut on opposite page.

[†] Hub is a sphere, flattened on top and bottom; full size drawing on request.

⁺ REGISTERED TRADE MARK

WILLIAMS' +"VULCAN"

DROP-FORGED CRANK HANDLES



Unfinished are plain forgings without hole in hub.

Broached have holes finished and hubs recessed or counterbored in free end, but are otherwise plain forgings.

Finished are broached, counterbored in free end of hub, ground, polished, case-hardened all over and lacquered to prevent rusting.

The broached openings are made with corners slightly rounded to prevent breakage and a slight clearance is provided.

Holes are regularly finished to standard sizes given below, but each forging admits of broaching to the maximum dimensions stated.

Smaller openings than standard and special sizes, running by sixteenths from 1/2 to 1 inch inclusive, and thence by eighths, can be broached to order at extra cost.

Hubs of Broached, or Finished can be cut to shorter lengths and Handles will be offset (see small cut) if desired, at an additional charge.

		Length		H	lub		re Hole roached	1	LIST PRIC	E	
No.	Center to Center	Ex- treme	Handle above Arm	Diam.	Length	Standard in Stock	Maximum to Order	Unfin- ished	Broached	Finished	No
00 0 1 2	1 3/4 2 1/4 3 3 1/2	2 5/8 3 1/8 4 4 1/2	2 3/8 2 1/2 2 3/4 2 7/8	1 1 1 1/4 1 1/16	1 1/4 1 1/4 1 1/2 1 5/16	1/2 1/2 9/16 1/2	5/8 5/8 13/16 5/8	\$.70 .78 .88 .88	\$1.22 1.30 1.40 1.40	\$1.85 2.00 2.30 2.30	00 0 1 2
4 6 8	4 5 6	5 1/8 6 1/8 7 1/8	3 1/8 3 1/8 3 1/8	1 1/4 1 1/4 1 1/4	1 3/8 1 13/16 1 15/16	9/16 5/8 11/16	13/16 13/16 13/16	1.05 1.30 1.65	1.60 1.95 2.40	2.65 3.15 3.85	4 6 8
10 12 14 16	7 8 9 1/8	8 1/4 9 3/8 10 1/2 11 1/2	3 3/8 3 5/8 3 3/4 4	1 3/8 1 9/16 1 1/2 1 3/4	2 1/16 2 7/16 2 1/2 3	3/4 7/8 7/8	7/8 1 1 1 1/8	2.10 2.65 3.00 3.95	2.95 3.60 4.00 5.15	4.75 5.80 6.50 8.15	10 12 14 16

⁺ REGISTERED TRADE MARK

Type A

WILLIAMS' DROP-FORGED THUMB NUTS

BLANK OR TAPPED

These are drop-forged from a fine grade of steel that drills and taps readily; they are furnished either Blank or Tapped, tumbled smooth.

Nuts tapped U. S. Standard threads in stock. Other threads to order. Unless otherwise specified, orders for Tapped Nuts will be supplied with U. S. Standard threads.

Tapped Nuts have base faced at right angle to hole. Special sizes and shapes and Tobin Bronze Nuts to order.



Type I

When tapping is ordered, a commercial product is furnished. If additional accuracy is required an extra charge, consistent with the special requirements, will be made. When ordering indicate pattern (A or B) by letter.

Tapped Thumb Nuts will be furnished, unless otherwise specified.

For Bolt; Size	1/8	3/16	1/4	1	5/16	3/8	7	/16	1/2	9	/16	5/8	3/4
U. S. Std. (Natl. Coarse)—Threads Per Inch	40	24	20	1	18	16		14	13		12	11	10
Extreme Width across Wings Type A	3/4 25/32	15/16 1	1 1/8 1 3/1	- 1	1 7/16 1 3/8			7/8				3/4 9/16	
Diameter, Top of Barrel	1/4	5/16	3/8		7/16	17/32		5/8	21/32		3/4	13/16	15/16
LIST PRICE, per 100, Blank Tapped U. S. Standard, unless otherwise specified	\$ 3.50 \$ 9.00	4.00 10.00	4.50		5.20 13.00	6.50 16.00		8.00 20.00	10,00 2 5.00	Ι.	12.00	14.50 34.00	21.00 46.00

WILLIAMS' DROP-FORGED THUMB SCREWS

All Types Furnished Either Blank or Threaded



*Types E, F, and G will be Discontinued when present stock is exhausted.

Drop-forged from a fine grade of steel that threads readily and tumbled smooth. Special sizes and shapes and Tobin Bronze Screws to order.

Type G is made in 1/4, 5/16 and 3/8 inch diameters in all regular lengths.

Dies for the following Screws have not yet been made, consequently these sizes are not now carried in stock; 7/16 inch diameter Type B, 9/16 inch diameter Types A, B, E and F, 5/8 inch diameter Types E and F, 3/4 inch diameter Types A, B, D, E and F.

(Continued on next page)

WILLIAMS' DROP-FORGED THUMB SCREWS

BLANK, OR THREADED

See illustrations on opposite page

Threaded Thumb Screws, except Types C and E, over 4 inches long have threads running up only 4 inches.

Lengths, longer than those listed, can be furnished specially from available dies; intermediate lengths take price of next longer length plus an extra charge for cutting. Electric Welding to order only.

Screws with U. S. Standard threads in stock. Whitworth Standard supplied at regular prices; other threading to order. Unless other threads are specified, Threaded Screws will be furnished with U. S. Standard threads.

Screws with special points can be supplied to order.

When ordering indicate pattern by letter.

When threading is ordered, a commercial product is furnished. If additional accuracy is required an extra charge, consistent with the special requirements, will be made.

Threaded Thumb Screws will be furnished, unless otherwise specified.

Width	UNITED STATES	AUTO LINE	Diameter !	Screw and U	J. S. Standa	rd (Natl. Co	arse) Threa	ds per Inch			Width
of Head	1/8 40	3/16 24	1/4 20	5/16 18	3/8 16	7/16	1/2 13	9/16 12	5/8 11	3/4 10	of Head
Type A B C-D E-F G	3/4 25/32 19/32 5/8	15/16 1 27/32 7/8	1 1/8 1 3/16 1 1/16 31/32	1 7/16 1 3/8 1 3/16 1 1/4	1 11/16 1 5/8 1 3/8 1 3/8 1 1/4	2 1 9/18 1 0/16	2 1/4 2 1/16 1 3/4 1 3/4	1 7/8	2 3/4 2 9/16 2 1/16	*2 1/4	Type A B C-D E-F*

*To be Discontinued when present stock is exhausted.

*Type C only; D not made.

BLANK, List Price per 100

Length Under Head 1/4 1/2 3/4	\$ 6.80 7.10 7.40	\$ 7.40 7.70 8.00	\$ 8.00 8.30 8.60	\$ 9.00 9.30 9.60	\$10.20 10.50 10.80	\$12.00 12.40	\$14.00 14.40	\$18.00 18.50			Lengt Unde Head 1/4 1/2 3/4
1 1 1/4 1 1/2 1 3/4	7.70 8.00 8.30	8.30 8.60 8.90 9,20	8.90 9.20 9.50 9.80	9.90 10.20 10.60 11.00	11.10 11.40 11.80 12.20	12.80 13.20 13.70 14.20	14.80 15.30 15.80 16.40	19.10 19.80 20.60 21.50	\$ 24.50 25,50 26.60 27.80	\$40.00 41.00 42,10 43.40	1 1 1/4 1 1/2 1 3/4
2 2 1/4 2 1/2 2 3/4		9.60	10.20 10.60 11.00 11.40	11.40 11.80 12.20 12.60	12.60 13.00 13.40 13.90	14.70 15.30 15.90 16.50	17.00 17.70 18.40 19.20	22,50 23,60 24,80 26,10	29.10 30.50 32.00 33.60	44.90 46.40 48.40 50.40	2 2 1/2 2 1/2 2 3/4
3 3 t/2			11.80	13.00 13.80 14.60	14.40 15.40 16.60	17.20 18.60 20.40	20.20 22.60 25.60	27.50 30.30 84.00	35.30 38.90 44.00	52.70 57.50 63.60	3 1/2

THREADED, List Price per 100

U. S. Standard Threads will be furnished, unless otherwise specified.

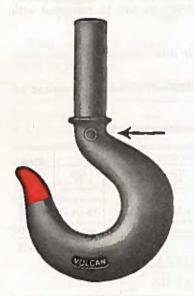
1/4 1/2 3/4	\$10.80 11.30 11.80	\$11.40 11,90 12.40	\$12,50 13,00 13.50	\$14.00 14.50 15.00	\$16.20 16.70 17.20	\$19,20 19,90	\$22.60 23,30	\$29.50 80.30			1/4 1/2 3/4
1 1 1/4 1 1/2 1 3/4	12.40 13.00 13.70	13.00 13.60 14.30 15.00	14.10 14.70 15.40 16.10	15.60 16.20 17.00 17.90	17.80 18.40 19.20 20.10	20.70 21.60 22.70 23.80	24.10 25.10 26.20 27.50	31.30 32.60 34.00 35.50	\$40.10 41.70 43.40 45.20	\$62.00 63.60 65.40 67.50	1 1 1/4 1 1/2 1 3/4
2 2 1/4 2 1/2 2 3/4		15.90	17.00 17.90 18.80 19.70	18.80 19.70 20.60 21.60	21.00 22.00 23.00 24.10	24.90 26.10 27.30 28.50	28.80 30.20 31.60 33.10	37.30 39.20 41.20 43.30	47.30 49.60 52.00 54.50	69.90 72.40 75.60 79.00	2 2 1/4 2 1/2 2 3/4
3 3 1/2			20.60	22.60 24.60 26.70	25.20 27.40 30.00	29.80 32.60 36.00	34.80 38.90 44.10	45.50 50.10 56.00	57.20 63.10 71.00	82.70 90.70 100.40	3 3 1/2

WILLIAMS OPT OF OROPATOR TO THE TREET

WILLIAMS' +"VULCAN" DROP-FORGED HOIST HOOKS

The Hooks with the Orange Tip

SHANK PATTERN



Heat Treating. After forging, every "Vulcan" Hook is accurately heat-treated for maximum strength and toughness—the liability of breakage is reduced to the minimum.

Proof-Testing. To insure proper service at listed capacity every hook, after heat-treatment is prooftested on a standard tension machine to fifty per cent beyond its rated "Safe Working Load." Each Hook so tested is stamped **O**, as illustrated, and hence can be readily identified as "proof-tested."

(Continued on following page)

† Shanks of Nos. 13, 14, 15, 15A, 16 and 16A can be made longer if desired at an additional charge of \$.55, .80, 1.05, 1.30, 1.40 and 1.75 (list price) per extra inch or fraction thereof, respectively.

‡ 15A and 16A Hooks are made from special alloy steel; others from carbon steel.

	Sh	ank			reme	Capaci	ty Shanks as of 2000	Blank, lbs.	Tay.	
No.	Diam., Nom- inal Rough Size	Length	Opening, or Throat	Length	Width	Safe Working Load	Average Load at Elastic Limit	Approximate Load Required to Straighten out	LIST	No.
2	1/2	2	1	5	2 7/8	.5	.9	1.9	\$.32	2
3	9/16	2 1/4	1 1/16	5 1/2	3 1/8	.6	1.2	2.3	.37	3
4	5/8	2 1/2	1 1/8	6	3 1/2	.7	1.5	3.	.44	4
5	3/4	2 3/4	1 1/4	6 3/4	3 7/8	1.2	2.5	5.7	.58	5
6	7/8	3	1 3/8	7 1/2	4 3/8	1.7	3.5	7.	.85	6
7	1	3 1/4	1 1/2	8 1/4	4 7/8	2.1	4.2	8.5	1.25	7
8	1 1/8	3 1/2	1 3/4	9 1/4	5 5/8	2.5	5.4	10.	1.80	8
9	1 1/4	3 3/4	1 7/8	10 1/4	6 3/8	3.	6.2	13.	2.45	9
10	1 3/8	4	2 1/16	11	6 7/8	4.	8.	17.	3.20	10
11	1 1/2	4 1/4	2 1/4	12	7 1/2	4.7	9.	19.	4.10	11
12	1 5/8	4 1/2	2 1/2	13	8 1/4	5.5	11.	26.	5.60	12
13	1 3/4	†5	3	14 1/2	9 1/4	6.8	13.	32.	7.80	13
14 15 ‡15A 16 ‡16A	2 2 3/8 2 3/8 2 3/4 2 3/4	†5 1/2 †6 †6 †7 †7	3 3/8 4 4 4 1/2 4 1/2	16 17 7/8 17 7/8 21 1/2 21 1/2	11 13 1/2 13 1/2 15 15	8. 11. 15. 20. 25.	17. 21. 25. 40. 50.	35. 48. 55. 80.	12.00 23.00 39.00 60.00 70.00	14 15 ‡15A 16 ‡16A

⁺ REGISTERED TRADE MARK

WILLIAMS' +"VULCAN" DROP-FORGED HOIST HOOKS

The Hooks with the Orange Tip

EYE PATTERN—WELDLESS

(Continued from preceding page)

Use the Hook with the orange tip—no other standard line offers such assurance of safety and care in manufacture.

For Safety Chains on railroad cars, a Hook, approximately No. 27 in size and with eye at right angle, can be furnished to order in reasonable quantities; see small illustration. Full size drawing on request.

Tobin Bronze Hooks from standard or special dies to order in quantities; prices on application.

‡36A Hook is made from special alloy steel: others from carbon steel.



		meter Eye			reme nsions	Capacity	y, Tons of	2000 lbs.	Hardbon.	and the
No.	Inside	Outside	Opening, or Throat	Length	Width	Safe Working Load	Average Load at Elastic Limit	Approximate Load Required to Straighten out	LIST PRICE	No.
22	3/4	1 1/2	1	4 3/8	2 7/8	.5	.9	1.9	\$.36	22
23	7/8	1 3/4	1 1/16	4 7/8	3 1/8	.6	1.2	2.3	.43	23
24	1	2	1 1/8	5 3/8	3 1/2	.7	1.5	3.	.53	24
25	1 1/8	2 1/4	1 1/4	6 3/16	3 7/8	1.2	2.5	5.7	.73	25
26	1 1/4	2 1/2	1 3/8	6 7/8	4 3/8	1.7	3.5	7.	1.05	26
27	1 3/8	2 3/4	1 1/2	7 5/8	4 7/8	2.1	4.2	8.5	1.50	27
28	1 1/2	3	1 3/4	8 9/16	5 5/8	2.5	5.4	10.	2.10	28
29	1 5/8	3 1/4	1 7/8	9 9/16	6 3/8	3.	6.2	13.	2.85	29
30	1 3/4	3 1/2	2 1/16	10 3/8	6 7/8	4.	8.	17.	3.70	30
31	2	4	2 1/4	11 1/2	7 1/2	4.7	9.	19.	4.70	31
32	2 3/8	4 5/8	2 1/2	13	8 1/4	5.5	11.	26.	6.40	32
33	2 3/4	5 1/4	3	14 3/4	9 1/4	6.8	13.	32.	9.40	33
34 35 36 ‡36A	3 1/8 3 1/2 4 4	6 1/8 7 8 1/2 8 1/2	3 3/8 4 4 1/2 4 1/2	16 3/4 19 1/8 22 3/4 22 3/4	11 13 1/2 15 15	8. 11. 20. 25.	17. 21. 40. 50.	35. 48. 80.	18.50 35.00 86.00 100.00	34 35 36 ‡36A

REGISTERED TRADE MARK

WILLIAMS' +"VULCAN" WELDLESS EYE BOLTS

PLAIN PATTERN

Blank or Threaded



These carbon steel Eye Bolts are specially heattreated, after forging, to increase further their strength and toughness and reduce the liability of breakage.

To insure proper service at listed capacity, every "Vulcan" Eye Bolt, after heat-treatment, is proof tested on a standard tension machine before threading to fifty per cent beyond its "Safe Working Load."

Each Eye Bolt so tested is stamped o near its piece number, which appears in raised letters on the forging, and hence can be readily identified as "proof-tested."

U. S. Std. Threaded Eye Bolts of Standard length are in stock; threaded prices are for these with either U. S. or Whitworth Std. Threads; longer lengths and special threads extra.

Tobin Bronze Eye Bolts for marine work from standardard or special dies to order in quantities; prices on request. Eye Bolts can be galvanized to order at extra cost. Prices given for special Eye Bolts on receipt of drawings, or models and specifications.

(Continued on following page)

When ordering, please state whether Blank or Threaded are desired; Blank (shank not threaded) will be supplied, unless otherwise specified.

	100	Shank	MI	Diame	ter Eye		acity		LIST	PRICE,	Each		
		Std.	MEIT	The same			nks;		Blank		Thre	eaded	
No.	Diam.; Nom- inal Rough Size; Blank	Length under Eye, Blank and Thd.	Max- imum Length in Stock; Blank	Inside	Outside	Safe Work- ing	00 lbs. Break-	Lgth.	Extra for Lgth. up to Max. (B)	Extra per *Inch over Max. (C)	Stand- ard Lgth.	Extra per *Inch for Thd. only (D)	No.
3 4 5 6	3/8 7/16 1/2 9/16	1 1/4 1 3/8 1 1/2 1 5/8	4 1/2 4 1/2 4 1/2 4 1/2	1 1 3/32 1 3/16 1 9/32	1 21/32 1 27/32 2 1/16 2 9/32	.7 1. 1.3 1.5	3. 4. 5. 6.	\$.11 .12 .14 .17	\$.11 .12 .14 .17	\$.06 .06 .06 .08	\$.16 .18 .21 .25	\$.05 .05 .05 .05	3 4 5 6
7 8 9 10	5/8 3/4 7/8	1 3/4 2 2 1/4 2 1/2	4 1/2 5 5 5	1 3/8 1 1/2 1 11/16 1 13/16	2 1/2 2 13/16 3 1/4 3 9/16	2. 3. 3.5 4.	8. 12. 16. 20.	.22 .30 .40 .55	.22 .24 .26 .30	.10 .12 .14 .17	.32 .42 .55 .74	.06 .06 .06	7 8 9 10
11 12 14 15	1 1/8 1 1/4 1 1/2 1 3/4	2 3/4 3 3 1/2 3 3/4	5 6 6 6	2 2 3/16 2 1/2 2 7/8	4 4 7/16 5 3/16 6 1/16	5. 7.5 9. 11.	23. 33. 42. 53,	.80 1.15 2.00 3,00	.35 .50 .65 .80	.20 .23 .33 .48	1.04 1.45 2.50 3.75	.08 .10 .14 .20	11 12 14 15
16 17	2 1/2	4 5	6	3 1/4	6 7/8 8 9/16	13. 16.	68. 85.	4.25 7.00	1.00 .75	.65 1.00	5.30 8.80	.27	16 17

Weights, page M.

+ REGISTERED TRADE MARK

*Extra per inch, or fraction thereof.

WILLIAMS' +"VULCAN" WELDLESS EYE BOLTS

SHOULDER PATTERN

Blank or Threaded

(Continued)

On standard length Threaded Eye Bolts of Shoulder Pattern the thread runs within 1/8" (No. 21) to 3/4" (No. 36) of shoulder, which is faced.

Prices for either Plain, or Shoulder Eye Bolts of "Extra Length" apply only to forgings which may be in stock at time ordered.

To determine List Price for Threaded Eye Bolts of other than standard length:-

Determine price of Blank (see A, B and C in table).
 Add for threading (see D).
 If quantity is less than 100 of same pattern and shank diameter, shorter or longer than standard, add \$2.00 NET for the lot to cover "set-up" charge.
 Shorter lengths than standard take Standard Threaded List plus "set up" charge if standard

Threaded List, plus "set-up" charge, if any.

Example:—50 No.	28—8"	long,	Threaded	3"
Blank—Std. Length Extra to Max. 5"	2c	(A) (B) (C) (D)		.30 .24 .36 .18

"Set-Up" NET charge, \$2.00 extra for the lot.

LIST PRICE, Each \$1.08



When ordering, please state whether Blank or Threaded are desired; Blank (shank not threaded) will be supplied, unless otherwise specified.

		Shank		Eye, D	iameter		acity		LIST	PRICE	Each		
		Std.				Bla T	nks;		Blank		Thre	eaded	
No.	Diam.; Nomi- nal Rough Size; Blank	Lgth. under Shldr. Blank and Thd.	Max- imum Lgth. in Stock; Blank	Inside	Outside	Safe Work- ing	00 lbs. Break-	Stand- ard Lgth. (A)	Extra for Lgth, up to Max. (B)	Extra per *Inch over Max. (C)	Stand- ard Lgth.	Extra per *Inch for Thd. only (D)	No.
21 22 23 24	1/4 5/16 3/8 7/16	1 1 1/8 1 1/4 1 3/8	3 4 4 1/2 4 1/2	3/4 7/8 1 1 3/32	1 3/16 1 7/16 1 21/32 1 27/32	.2 .4 .7 1.	1.5 2. 3. 4.	\$.09 .10 .11 .12	\$.09 .10 .11 .12	\$.06 .06 .06	\$.14 .15 .16 .18	\$.05 .05 .05	21 22 23 24
25 26 27 28	1/2 9/16 5/8 3/4	1 1/2 1 5/8 1 3/4 2	4 1/2 4 1/2 4 1/2 5	1 3/16 1 9/32 1 3/8 1 1/2	2 1/16 2 9/32 2 1/2 2 13/16	1.3 1.5 2. 3.	5. 6. 8. 12.	.14 .17 .22 .30	.14 .17 .22 .24	.06 .08 .10	.21 .25 .32 .42	.05 .05 .06	25 26 27 28
29 30 31 32	7/8 1 1 1/8 1 1/4	2 1/4 2 1/2 2 3/4 3	5 5 5 6	1 11/16 1 13/16 2 2 3/16	3 1/4 3 9/16 4 4 7/16	3.5 4. 5. 7.5	16. 20. 23. 33.	.40 55 .80 1.15	.26 .30 .35 .50	.14 .17 .20 .23	.55 .74 1.04 1.45	.06 .07 .08 .10	29 30 31 32
34 35 36	1 1/2 1 3/4 2	3 1/2 3 3/4 4	6 6 6	2 1/2 2 7/8 3 1/4	5 3/16 6 1/16 6 7/8	9. 11. 13.	42. 53. 68.	2.00 3.00 4.25	.65 .80 1.00	.33 .48 .65	2.50 3.75 5.30	.14 .20 .27	34 35 36

Weights, page M.

REGISTERED TRADE MARK

*Extra per inch, or fraction thereof.

WILLIAMS' MISCELLANEOUS EYE BOLTS

CARBON STEEL—WELDLESS







E

B 17, 25, 30, 35

Type B

These are furnished in two styles or types, A and B, and are carried in stock with shanks blank (not threaded), but will be supplied threaded to order at extra charge.

Full size drawings will be sent on request.

rm.	37-	Sha	nk	Diame	ter Eye	LIST	No.	There
Туре	No.	Diameter	Length	Inside	Outside	PRICE, Blank	10.	Тур
A	1 10 12	1/4 3/8 3/8	* 3/4 3 3	3/8 3/4 3/8	3/4 1 3/8 1	\$.07 .12 .12	1 10 12	A
A	11 13 14	7/16 7/16 15/32	2 3/16 2 3/4 1 5/8	1 7/32 5/8 1/2	2 7/32 1 3/8 1 1/4	.30 .14 .11	11 13 14	Λ
A	15 16 17	1/2 1/2 1/2	3/4	9/16 1 3/8	1 1/4 2 3/8 1 3/4	.11 .26 .17	15 16 17	A
A	20 25 26	9/16 5/8 5/8	2 1 3/4 *1 3/4	5/8 7/8 1 1/8	1 1/2 1 5/8 2	.14 .14 .20	20 25 26	A
A	40 55 58	13/16 1 1 1/16	3 1/4 1 5/16 4 1/8	3/4 7/8 1 1/8	2 1/8 2 3/8 2 7/8	.35 .35 .65	40 55 58	A
В	1 4 5 10	1/4 5/16 3/8	1/2 3 6	3/8 5/16 1/2	3/4 15/16 1 1/8	.05 .12 .25	1 4 5 10	В
В	15 16 17	7/16 1/2 1/2 †1/2	1 1/8 *1 1/2 3 1/4 1 3/4	13/16 7/16 1/2	1 3/4 1 13/16 1 7/16 1 1/8	.14 .15	15 16 17	В
В	25 26 27	†5/8 5/8 5/8	2 3/8 2 3/4 3/4	1/2 11/16 1 1/2	1 1/4 1 11/16 2 1/2	.12 .15 .26	25 26 27	В
В	30 35 45 50 55	†11/16 †3/4 7/8 15/16	2 1/2 2 3/4 4 1/8 *5 2 3/4	9/16 5/8 1 1/8 1 1/8 3/4	1 7/16 1 5/8 2 3/8 2 3/8 2 3/8	.14 .16 .35 .55	30 35 45 50 55	В

[†] Shanks of B 17, 25, 30 and 35 are 7/16, 1/2, 9/16 and 5/8 inch in diameter for 3/4, 1, 1 and 1 1/8 inch from end respectively, as illustrated above.

^{*}Also carried in stock in the following maximum lengths at list prices shown:—No. A-1, 3", \$.16; No. A-26, 4½", \$.42; No. B-15, 4½", \$.28; No. B-50, 8", \$.85.

WILLIAMS' DROP-FORGED ROD ENDS

UNFINISHED



These Rod or Stub Ends are drop-forged from mild steel which welds easily.

Dimensions show sizes of unfinished forgings. Prices will be given for special forms on receipt of models or drawings and specifications stating quantity required.

	S	hank	H	end	LIST P	RICE	
No.	Diameter	Standard Length under Head	Diameter	Thickness	Extra Length per inch, or less	Standard Rod Ends	No.
0B	3/16	4 13/16	3/8	1/4		\$.17	0B
1B IC	1/4	2 11/16 *5	9/16	1/2		.16	1B
iĎ	1/4	*2 3/8	5/8 7/16	1/4	\$.03	.18	ič
1 1/2A	9/32	*5	11/16	9/32	.03	.28	1 1/2
2A 2B 2C	5/16	*3 3/4 3 1/8 5 3/4	3/4	7/16	.03	.19	2A
2B 2C	5/16 5/16	3 1/8	3/4 3/4	5/16	***********	.09	2B
2D	5/16	5 3/4 1 1/4	13/16	3/8 3/8	*************	.10	2A 2B 2C 2D
3A 3B	3/8	#9	1 19	3/8	.03	.10	3A
3B 3C	3/8 3/8	*3 3/8 *3 1/2	21/321 13/16	3/4 3/8	.04	.36	3A 3B 3C
3D	3/8	*3 1/2	9/16	9/16	.04	.19	30
3E	3/8	3 1/8	5/8 3/4	5/8 3/8		.18	3D 3E
3F	3/8		3/4	3/8	*************	.08	3F
3G 3H	3/8 3/8	1 7/16 1 5/8	5/8 3/4	3/8 3/8 3/8	************	.09	3G 3H
3J	3/8	3 1/16	7/8	3/8	***************************************	.14	3J
4B	7/16 7/16 7/16	*4 1/2 *3 3/8 *2 1/2 1 3/4	15/16	5/8 3/4	.04	.19	4B
4C 4D	7/16	*3 3/8	13/16 ² 5/8	3/4 1/2	.04	.31	4C
4E	7/16	1 3/4	13/16	5/16	.04	.19	4C 4D 4E
5A	1/2 1/2 1/2 1/2 1/2	平4 3/9	1	1/2 3/4	.08	.17	5A
†5B 5C	1/2	2 3/8	3/4	3/4		.2t	15B
5D	i/2	2 3/8 3 1/16 *2 7/8	3/4 7/8 3/4 ²	7/16 13/16	.00	.19	5C 5D
5E	1/2 1/2 1/2	*2 1/8	1 1/16	9/16 11/32	.06	.12	5E 5F 5G
5F 5G	1/2	2 1/16	13/16	11/32 7/16	.06	.14 .72	5F
64	9/16	2	1 1/16	7/16	.00	.13	6A
6B	9/16	1	7/8	11/16		.31	6B
6C	9/16	2 3/8	15/16	3/8			6C
5 1/2A 7A	5/8 5/8	4 5/16 *2 3/8	7/8 1 1/8	5/16 15/32 19/32		.36 .16	6 1/2
7B	5/8	*2 3/8 *4 7/8	î î/4	19/32	.08 .08	.28	7A 7B
7C	5/8 5/8	1 1/2	1 3/4	5/B		.35	7C
7D 7E	5/8	*7 1/2 *6 7/8	1 5/32 1 1/8 ³	21/32 1 1/16	.08 .08	.52	7D 7E
7F	5/8	*4 1/2	1 7/16	11/16	.08	.43	7F
7G 7H	5/8 5/8 5/8	2 5/16 3	1	7/16 7/16		.30	7G
9A	3/8		1 1/16 1 3/4	7/16	00	.26	711
9B	3/4 3/4 3/4	*4	1 3/4 1 1/2 1 1/8	5/8 13/16 3/4	.08 .08	.46	9A 9B
9C 9D	3/4	*4 3/8	1 1/8	3/4	.08	.37	9B 9C
11A	3/4 7/8	3 7/8 *3 1/2	1 1/8 1 1/2	1/2 1 1/16	.10	.46	9D
11B	7/8 7/8	*4 1/2	2	15/16	.10	.64	liß
IIC IID	7/8 7/8	4 3/4	1 7/16 1 1/8	5/8 1 5/32	***********	.37	11C
	7/8	4 3/4 *6	1 1/8 2 15/16	1 5/32	10	.55	11D
‡13A 13B		*3 1/2 *3 1/2	1 5/8	1 1/2	.12	1.50 .72	113A 13B
13C	1	*3 1/2 *3 1/2	1 15/32	1 1/2 1 1/8 1 1/8	.12 .12 .12	.63	13C
14A	1 1/16	*5 3/4	2 1/16	1 1/8 1 1/8	.12	.60	14A
15A 15B	1 1/8 1 1/8	*5 *6	1 13/16 2 1/4	1 1/4	.14	.92 1.51	15A 15B
17A	1 1/4 1 3/8	#6 #7 1/4	2 1/4 2 5/16 2 3/8	1 1/4 1 1/2 1 1/2	.16	1.60	174

^{*} Can be furnished longer if desired.

[†] Head off-set from center of shank 3/64 inch.

[‡] Hole in head, 1 1/4 inch diameter.

¹ Largest Diameter Head, 1 inch.

² Largest Diameter Head, 1 1/8 inch.

³ Largest Diameter Head, 1 9/16 inch.

+"SUPERIOR" DROP-FORGED WRENCHES (Carbon Steel)

For

WHITWORTH STANDARD AND METRIC MEASURE NUMERICALLY ARRANGED

*Furnished from stock until supply is exhausted; thereafter on special order only.

No.	Whitworth Std. Nuts; Size Bolts	Metric Open- ings; m/m	No.	Whitworth Std. Nuts; Size Bolts	Metric Open- ings; m/m	No.	Whitworth Std. Nuts; Size Bolts	Metric Open- ings; m/m
See Pages 2 & 3	3		See Page 3 Cont'd	3		See Pages 4 & 5	3	C
MS000		5	м 9Т		38	W27	5/16 & 3/8	
MS000T		6	W 9	7/8		M28		16 & 18
MOOT		7	M10		40	M28T		17 & 19
M00		8	*M10V		41	W28	5/16 & 7/16	1
W00	1/8		M 10T		42	M29T		18 & 19
MOT		9	W10	1		M29		18 & 20
MO		10	M11		45	W29	3/8 & 7/16	10
WO	3/16	10	W11	1 1/8		M30	0,0 0 1,10	19 & 21
MIT	0/10	11	M12 W12	1 1/4	50	W30	3/8 & 1/2	
M1		12	W13	1 3/8		M31	0,0 0 1,2	20 & 22
W1	1/4	12	W14	1 1/2		M31T		21 & 23
M2T	1/2	13	*W15	1 5/8		W31	7/16 & 1/2	
M2		14	*W16	1 3/4		M32T	1/10 @ 1/2	22 & 24
M2U		15	*W16A	1 7/8		M32		22 & 25
W2	5/16	10	*W17	2		M32U		23 & 25
M3		1.0	*W18	2 1/4		W32	7/16 & 9/16	20 00 20
		16	*W19	2 1/2		W32	1/2 & 9/16	3.5
M3U		17	*W20	3		M34		23 & 27
мзт		18				M34T		24 & 26
W3	3/8	**				M341 M34U		25 & 27
M4T		19					10 6 5 10	20 00 21
M4		20	See	5	-	W34	1/2 & 5/8	07 8 00
W4	7/16		Page 4		9	M35		25 & 28
M51'		21		111111111111111111111111111111111111111		M34V		26 & 28
M5		22			1	M35T		26 & 29
W5	1/2	11/10	M21		6 & 8	W35	9/16 & 5/8	
M6T		23	M2IT		7 & 9	M36T		27 & 29
M6U		24	M21U		8 & 10	M36		28 & 30
M6		25	W21	1/8 & 3/16		M36U		29 & 32
W6	9/16		M22		9 & 11	W36	9/16 & 3/4	
M7T		26	W22	1/8 & 1/4		M37		30 & 32
M7U		27	M23		10 & 12	W37	5/8 & 3/4	0.0
M7		28	M23T		11 & 13	W38	5/8 & 7/8	711
W7	5/8		W23	3/16 & 1/4		M39		32 & 35
M8U		29	W24	3/16 & 5/16	10 4 10	W39	3/4 & 7/8	311
M8		30	M25T		12 & 13 12 & 14	M40		33 & 39
M8T		32	M25 M25U		13 & 15	W40	3/4 & 1	
*M8X		33	W25	1/4 & 5/16	10 00 10	M41		38 & 40
W8	3/4		W26	1/4 & 3/8		M41T		38 & 42
M9U		34	M27	1/4 & 0/6	14 & 16	W41	7/8 & 1	
M9		35	M27T		15 & 16	W42	7/8 & 1 1/8	
M9V	The Property of	36	M27U		15 & 17	M43	and the second	42 & 45

+"SUPERIOR"

DROP-FORGED WRENCHES

(Carbon Steel)

For

WHITWORTH STANDARD AND METRIC MEASURE NUMERICALLY ARRANGED

*Furnished from stock until supply is exhausted; thereafter on special order only.

No.	Whitworth Std. Nuts; Size Bolts	Metric Open- ings; m/m	No.	Whitworth Std. Nuts; Size Bolts	Metric Open- ings; m/m	No.	Whitworth Std. Nuts; Size Bolts	Metric Open- ings; m/m
See Page 5 Cont'd	3	C	See Page 18	3		See Page 6	3	
W43 M44 W45 *W46 M47 *W47 *W48 *W49 *W51 *W55 *W55	1 & 1 1/8 1 & 1 1/4 1 1/8 & 1 1/4 1 1/8 & 1 3/8 1 1/4 & 1 3/8 1 1/4 & 1 1/2 1 3/8 & 1 1/2 1 1/2 & 1 5/8 1 1/2 & 1 3/4 1 5/8 & 1 3/4 1 3/4 & 2 1 3/4 & 2 1/4 2 & 2 1/4	46 & 50 50 & 55	W201 W202 W203 W204 W205 W207 W208 W209 W210 W211 *W212	1/4 5/16 3/8 7/16 1/2 5/8 3/4 7/8 1 1 1/8 1/1/4	INVALVO INVALVO AL SONO INVALVO INVA INVALVO INVA INVALVO INVA INVA INVA INVA INVA INVA INVA INVA	M601 M601T W601 M602 M602T *M602U W602 *M603 *M603T	5/16	12 13 14 15 16 17 18 19
*W57	2 & 2 1/4		See Page 26		711-72	W603 *M604	3/8	20
See Page 13	2	S	*W261A *W263A W264A	1/8 3/16 1/4		*M604T W604 *M605 *M605T	7/16	21 22 23
M75 W75 *M77 *W77A W77D M79 *M79T *M79T *W79F W79F	3/16 & 1/4 3/16 & 5/16 1/4 & 5/16 1/4 & 3/8 5/16 & 3/8	10 & 12 13 & 16 14 & 16 15 & 18 16 & 19	W265A W267A W268A W269A W270A W271A W273A W275A W276A *W277A	5/16 3/8 7/16 1/2 9/16 5/8 3/4 7/8 1 1 1/8		W605 *W606 W607 W608 W609 W610	1/2 9/16 5/8 3/4 7/8	20
W79G M81 *M81T *M81U W81F	5/16 & 7/16 	18 & 20 19 & 21 20 & 22	*W278A *W279A *W280A	1 1/4 1 3/8 1 1/2		See Page 46		
W81G *M83T M83 W83E	3/8 & 1/2	21 & 23 22 & 25	See Page 17	3		WE1-617 WE1-620	5/8 3/4	NA NA
*W83F *W83G W83C M85 *W85D *W85E W85C	7/16 & 9/16 1/2 & 9/16 1/2 & 5/8 9/16 & 5/8 9/16 & 3/4 5/8 & 3/4	28 & 30	W563C W563D W564	Open Closed End; End; Bolt Open'g 1/2-9/16 1/2-5/8 5/8-5/8		WE1-623 WE1-626 WE1-629 WE1-632 WE1-635	7/8 1 1 1/8 1 1/4 1 3/8	

+"SUPERIOR"

DROP-FORGED WRENCHES

(Carbon Steel)

For

WHITWORTH STANDARD AND METRIC MEASURE

NUMERICALLY ARRANGED

*Furnished from stock until supply is exhausted; thereafter on special order only.

No.	Whitworth Std. Nuts; Size Bolts	Metric Open- ings; m/m	No.	Whitworth Std. Nuts; Size Bolts	Metric Open- ings; m/m	No.	Whitworth Std. Nuts; Size Bolts	Metric Open- ings; m/m
See Page 7	3	<u>e</u>	See Page 12	3	S	See Page 14 Cont'd	9	C
M623		10 & 12	*W661B	1/8 & 1/4	PARTY.	*W763B	7/16 & 9/16	
M623T		12 & 14	W661C	3/16 & 1/4		W763C W764A	1/2 & 9/16 1/2 & 5/8	100
M623U		13 & 15	*W662A	3/16 & 5/16	Consti	W764B	9/16 & 5/8	1110
W623	3/16 & 1/4	12010	*W662B *W662C	1/4 & 5/16 1/4 & 3/8	NUS C	W764C W765A	9/16 & 3/4 5/8 & 3/4	1,35
W624	3/16 & 5/16	1 201	W663A	5/16 & 3/8	10070	W765B W765C	5/8 & 7/8 3/4 & 7/8	1.41604
W625	1/4 & 5/16		W663B	5/16 & 7/16	91100	117030	0/1 0.1/6	1879.7
M626		14 & 16	W663C	3/8 & 7/16	31	17		-
M626T		16 & 18	W664A	3/8 & 1/2		See	0	
W626	1/4 & 3/8	10 00 10	W664B	7/16 & 1/2		Page 8	0	
		12.7	W664C	7/16 & 9/16	Visid			
W627	5/16 & 3/8		*W665A W665B	1/2 & 9/16				
W628	5/16 & 7/16		W665C	9/16 & 5/8		*W801 W802	1/4 5/16	
M629		18 & 20	*W666A	9/16 & 3/4	Transaction of	W803	3/8	
W629	3/8 & 7/16		W666B	5/8 & 3/4		W804	7/16	
M628T		19 & 21	*W666C	5/8 & 7/8	9-57	W805 W806	1/2 9/16	
M630		20 & 22	W667A	3/4 & 7/8		W807	5/8 3/4	23.11
M630T		21 & 23	*W667B	3/4 & 1	The first	W808 W809	7/8	1123
M630U		22 & 25	*W667C	7/8 & 1		W810	1	
W630	3/8 & 1/2	quelli-	*W668A	7/8 & 1 1/8				
W631	7/16 & 1/2	1100		19.5	1000			
W632	7/16 & 9/16		See		(.5)	See Page 19	3	
*W633	1/2 & 9/16		Page 14	25		- ugo		
M634	1,5 2 0,10	23 & 27		300			7/	
M634T		24 & 26	W760A	1/8 & 1/4	100	W901	1/4	1
W634	1/0 4 5/0	24 00 20	W760B	3/16 & 1/4		*W902 W903	1/4 5/16 3/8	
	1/2 & 5/8	00 1 00	W760C	3/16 & 5/16	1 3	*W904	7/16	
M635T		26 & 29	W761A	1/4 & 5/16	4	W905 W906	1/2 9/16	
M635		28 & 30	W761B W761C	1/4 & 3/8 5/16 & 3/8		W907	5/8	
W635	9/16 & 5/8	2110	W762A	5/16 & 7/16		W908 W909	3/4 7/8	
*W636	9/16 & 3/4	201000	W762B	3/8 & 7/16	14.	W910	1	118
W637	5/8 & 3/4	BUNN.	W762C	3/8 & 1/2		*W910A *W911	1 1/8 1 1/8	HE WALL
W639	3/4 & 7/8	Int.Sm	W763A	7/16 & 1/2	land of	W912	1 1/4	1122

+"SUPERIOR" and "SUPERRENCH"+

(Carbon Steel) (Chrome-Moly.)

DROP-FORGED WRENCHES

For

WHITWORTH STANDARD AND METRIC MEASURE

NUMERICALLY ARRANGED

*Furnished from stock until supply is exhausted; thereafter on special order only.

No.	Whitworth Std. Nuts; Size Bolts	Metric Open- ings; m/m	No.	Whitworth Std. Nuts; Size Bolts	Metric Open- ings; m/m	No.	Whitworth Std. Nuts; Size Bolts	Metric Open- ings; m/m
See Page 24			See Page 32 Cont'd	Se var savas	C	See Page 41	3	
Providence for	III I I I I I I I I I I I I I I I I I		W1030	3/8 & 1/2		Whitworth sizes on application		
*W961A W963A W964A	1/8 3/16 1/4		M1031 *M1031T W1031	7/16 & 1/2	20 & 22 21 & 23	See Page 35	3	
W965A W967A	5/16 3/8		M1032	710 5 0/10	22 & 25			
W968A	7/16		*W1032	7/16 & 9/16	04 6 00	*W1203	3/8	
W969A	1/2		M1033	1/0 7 0/10	24 & 26	*W1205	1/2	
*W970A	9/16		W1033	1/2 & 9/16	00 1 07	*W1207	5/8	
W971A W973A	5/8 3/4		*M1034 W1034	1/0 %- 5/0	23 & 27	*W1208	3/4	H THE
W975A	7/8	7	M1035	1/2 & 5/8	25 & 28	*W1209	7/8	SPEALS
W976A	1		*W1035	9/16 & 5/8	25 & 28	*W1210	1,03	f-slipping
*W977A	1 1/8		*M1036	8/10 5 9/9	20 1- 20		- Jan	
*W978A *W979A	1 1/4		*W1036	9/16 & 3/4	28 & 30	See		- Il-w
*W980A	1 1/2		*M1037	8/10 & 3/4	30 & 32	Page 35		
			W1037	5/8 & 3/4	30 oc 32			
			W (03)	0/0 12 0/4				
See	6	-0				*W1903	3/8	
Page 32	No. of anti-seasons	G	See	(Tab	0	*W1905	1/2	
			Page 34	2	20	*W1907	5/8	- HOLE
						*W1908	3/4	e mil t
M1021		6 & 8				*W1909	7/8	1000/2011
W1021	1/8 & 3/16		W1075	3/16 & 1/4	It said	*W1910	1	
W1022	1/8 & 1/4	100	*W1077A	3/16 & 5/16				
*M1021T M1023		8 & 10	*W1077D	1/4 & 5/16		See		
W1023	3/16 & 1/4	10 & 12	*W1079F	1/4 & 3/8		Page 38	@	
*W1024	3/16 & 5/16	S. I was	*W1079D	5/16 & 3/8				
*M1025T		12 & 13	*W1079G	5/16 & 7/16		Whitwort	h sizes on appl	instina
M1025		12 & 14	*W1081F	3/8 & 7/16		WILLWOLD	п віхез он аррі	ication.
W1025 *W1026	1/4 & 5/16 1/4 & 3/8	A. Prottian	W1081G	3/8 & 1/2		0		/9
M1027	1/4 & 3/8	14 & 16	*W1083E	7/16 & 1/2	DULL-M	See Page 39		
*M1027T		15 & 16	*W1083F	7/16 & 9/16		- 100 07		
W1027	5/16 & 3/8	Marie W	*W1083G	1/2 & 9/16	200 10			
M1028		16 & 18	*W1083C	1/2 & 5/8		W8029	3/8 & 7/16	1100
W1028	5/16 & 7/16	10 6 10	*W1085D	9/16 & 5/8		W8033C	1/2 & 9/16	
*M1029T M1029		18 & 19 18 & 20	*W1085E	9/16 & 3/4		W8723	1/8 & 3/16	
W1029	3/8 & 7/16	10 00 20	*W1085C	5/8 & 3/4		W8727	1/4 & 5/16	

DROP-FORGINGS TO ORDER

Drop-forgings are used in vast quantities for a wide variety of mechanical purposes. They are made of steel, bronze, copper, iron and many other metals.

Their quality depends upon the material and the care and skill used in their manufacture. Our Chemical Laboratory checks all material as received; our Physical Laboratory tests forgings while in process and upon completion; our skill has been developed by half-a-century's experience in producing our standard stock tools and innumerable special designs to order.

MATERIAL

The material usually employed in making drop-forgings is bar steel. By carrying thousands of tons of assorted grades, shapes and sizes, many orders for drop-forgings can be completed without waiting to obtain the material. This is often a great convenience to our customers, particularly in the case of new dies, where the correct size of metal required cannot always be definitely determined until the tools are completed and tried.

DIES

Our facilities for sinking drop-forging dies, from the smallest, weighing only a few pounds, to massive blocks of several tons weight each, are unexcelled. Charges, when made for the use of dies, include but a portion of their cost and do not convey the right of removal from our works. We assume the risk and expense of their breakage and maintenance; the customer controls their use, as we will not make forgings from them without his written authority.

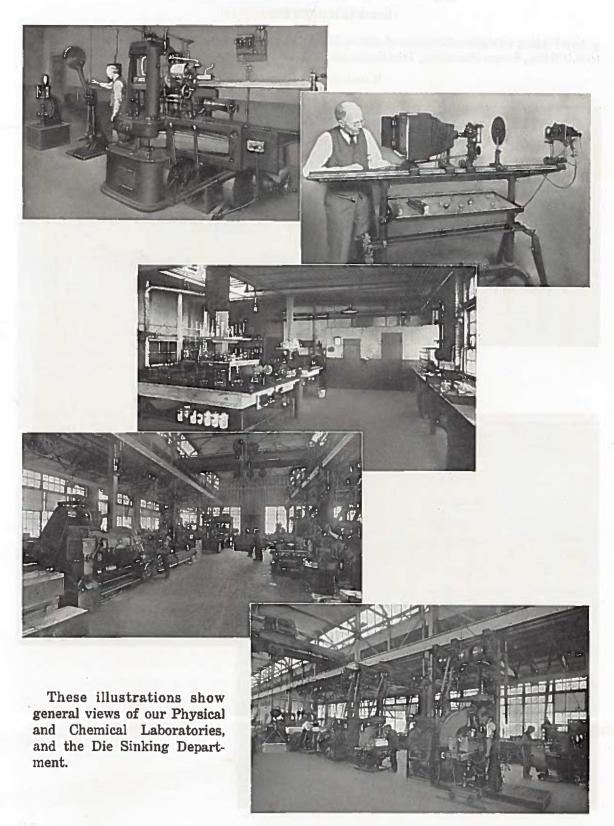
ESTIMATES

Dies are made to conform to a drawing; they usually differ from the finished part by the addition of the stock for removal in finishing and by the necessary draft, or taper, to permit drawing the forgings from them. Draft is seldom less than seven degrees—frequently it is more. Before sinking dies, we always submit to the customer for approval, a blue print showing the addition of the stock to be removed in finishing and the draft, with such other modifications as may be necessary.

When estimates are desired, therefore, send us a model, or drawing, of the part and state whether it shows "forging size" or "finished size," the quantity of forgings wanted and the material of which they are to be made. If the model, or drawings shows "finished size," tell us what surfaces are to be finished. We usually add at least 1/32 inch on each surface to be machined. On large forgings we add 1/16 to 1/8 inch; on small pieces, requiring only grinding or polishing, 1/100 inch is allowed.

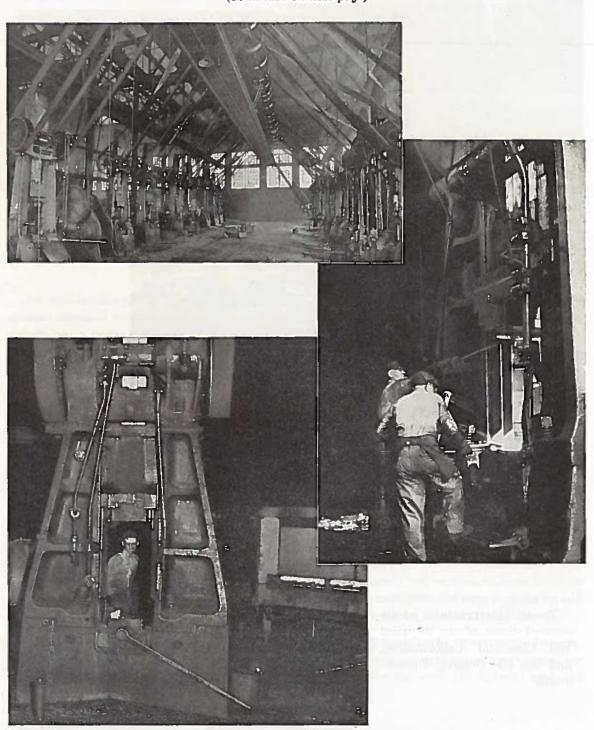
The price of drop-forgings is largely affected by the quantity made with one setting of the tools; it costs as much to set dies for 100 as for 1000 pieces, and the forging work is also more costly per unit in small lots. Prices for drop-forgings vary with the nature of the work, the material used, the heat treatment if any, and the quantity taken at one time.

DROP-FORGINGS TO ORDER



DROP-FORGINGS TO ORDER EQUIPMENT

Our forging equipment consists of Board Drops from 400 to 4,000 lbs., Steam Drops from 2,500 to 8,000 lbs., Steam Hammers, Trip Hammers, Upsetting Machines (sometimes called "Headers"), (Continued on next page)



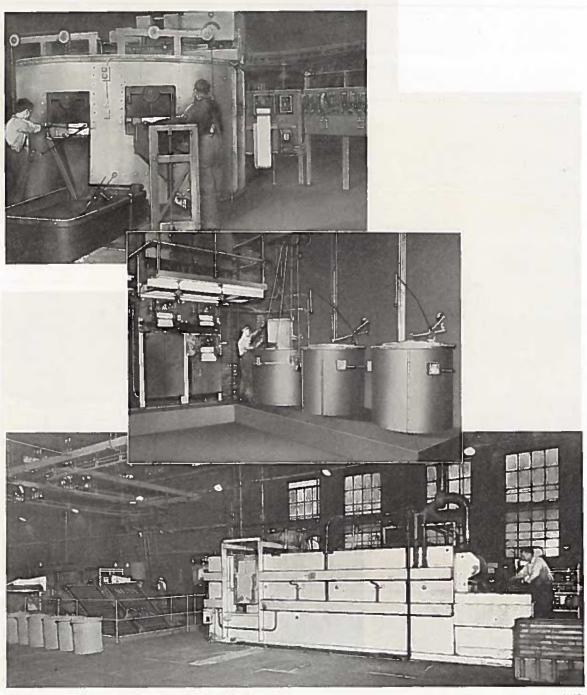
DROP-FORGINGS TO ORDER EQUIPMENT (Continued)

Coining Presses, Hydraulic Presses, Electric Welding Machines, Rolls, Shears, Cold Sawing Machines, Shot-blasting Machines, Pickling Machines, etc., etc.



DROP-FORGINGS TO ORDER HEAT TREATMENT

Our Heat-treating facilities are modern and complete. We have electric furnaces, both rotary with automatic temperature control, conveyor type with controlled atmosphere, and Homo electric furnaces and oil-fired furnaces of large capacity, all equipped with recording pyrometers. Methods and processes are all specified and controlled by our Metallurgical Department.



INSPECTION

All of our products are carefully inspected by experienced men in our Inspection Department where the most modern types of testing equipment are used to insure none but forgings correct to specifications leaving our plant.

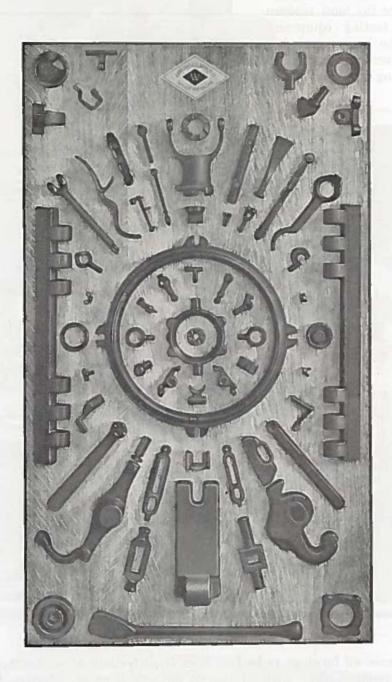


GUARANTEE

We guarantee all forgings to be free from imperfections of workmanship and material. We will gladly replace, without charge, any which prove defective, but we cannot allow claims for labor, or damages.

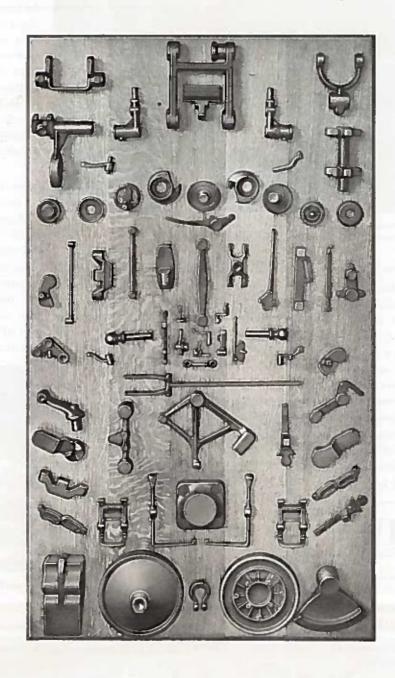
SUPERIOR DROP-FORGINGS TO ORDER

lilustrations of Drop-forgings made to order; not for sale from stock



SUPERIOR DROP-FORGINGS TO ORDER

Illustrations of Drop-forgings made to order; not for sale from stock



UV AND WELL

WILLIAMS' "SUPERIOR" (CARBON STEEL) WRENCHES

For some years previous to the war, the popular trend was toward replacement of this type of wrench with alloy steel tools which usually were chrome-plated and more highly finished. Today, however, material shortages and the need for critical economy makes a close examination of the relative merits of carbon and alloy steel wrenches particularly timely. Since we manufacture both types, we can present the following facts and figures without bias or prejudice.

Williams' "Superior" Wrenches are forged from carbon steel, specially processed to exacting specifications. These wrenches have been improved to a point where they are substantially twice as strong as the earlier carbon steel wrenches of our own manufacture. Comparative tests demonstrate that they average (throughout all patterns and sizes) 93% as strong as our corresponding alloy steel wrenches. In the popular Double-Head Engineers' pattern,



Comparison of Double-Head Engineers' Pattern of Alloy (top) and Carbon Steel wrenches. Both wrenches have same openings.



Comparative strength tests were made in Williams' Laboratory with every size and type in the carbon and alloy steel wrench lines.

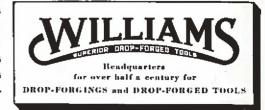
"Superior" (carbon steel) Wrenches are actually stronger than the corresponding sizes of alloy wrenches which are of thinner design. Other patterns in the Williams' line are forged from identical dies whether of carbon or alloy steel—thus the average shows a slight strength advantage in favor of alloy steel.

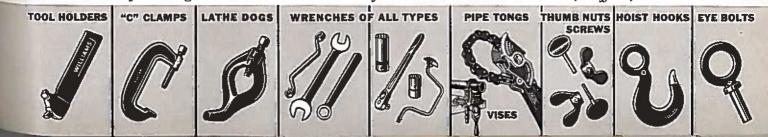
Against this slight advantage are the following practical considerations: Alloy steel wrenches cost nearly twice as much as "Superiors"; critical alloys are needed in many items of war production where substitution is highly undesirable; in the Double Head Engineers' pattern, the thicker design of "Superior" Wrenches affords a more comfortable hand grip and a better bearing on the nut; the usual finish supplied on "Superior" Wrenches involves no critical material (such as chrome), since they are finished in bakedon enamel rather than plating.

Economize with Carbon Steel Wrenches

In view of today's conditions, we strongly recommend the use of "Superior" (carbon steel) Wrenches wherever possible. For most industrial applications, any advantage in alloy wrenches is negligible. Some types of close-quarters work require the thinner heads available in the Double-Head Engineers' pattern of alloy wrenches, thus justifying their higher cost.

An informative booklet, providing comprehensive data on standard wrench types is available without charge. Write for "How to Select and Use Wrenches."





TO TO AND OF THE

BORING TOOLS

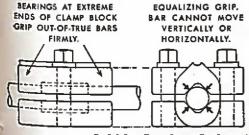
For those lathe operations involving boring and internal threading, Williams' Tools incorporate certain features which tend to conserve man-hours, improve output, and to reduce the number of rejects, particularly with semi-skilled and inexperienced operators.



Plain Bar

Williams' Series 80 Boring-Tool Holder

Williams' Boring-Tool Holders (80 series) are designed so that each holder will accommodate several sizes of bars and so that commercial forms of bar steel are adaptable for either bars or cutters without machining. Adjusting sleeves or bushings are not used with this holder so there are no loose parts to become misplaced or lost. The "V" Block clamping arrangement, sketched below, grips even undersize or out-of-round bars firmly at four points, thus preventing tool chatter.





Simplicity of design and sufficient stability to assure freedom from tool chatter are essential features in Tool-Holders for war production.

The Sleeve Bar regularly furnished accommodates either a straight or angle cutter in the *one* head, so there is no extra head to be misplaced while the other is in use. A Plain Bar, as illustrated above, can also be supplied if specified. Series 80 Holders are made in 5 sizes covering bar diameters from 3/16" to 1-1/8".



Williams' Light Boring-Tool Holder

For tool room use and all small work—including turning, as well as boring and threading—Williams' Light Boring Tool Holder incorporates certain distinctive features. In boring and internal threading

operations each holder will take several sizes of bars. Easy, rapid adjustment is assured with the knurled adjustment screw. When used as a Turning Tool Holder the offset shank makes it reversible for right and left hand work. This Holder is made in 3 sizes accommodating bars from 1/8" to 7/16" in diameter.

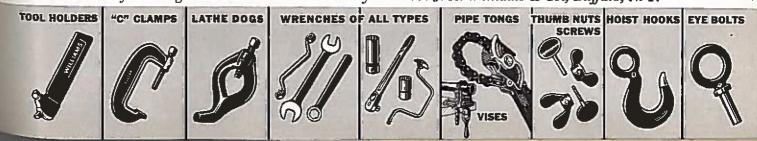
Williams' Adjustable Boring-Tool Post

The Williams' Adjustable Boring-Tool Post, with its long range center adjustment, is designed to accommodate many sizes of bars on various types of lathes. Easy, quick, vertical adjustment is accomplished by first selecting the proper bar recess in the slot-



ted collar and then rotating the knurled ring which raises or lowers the bar to the correct height. Tightening the set screw in the head of the post tightens the whole device instantly, giving an extremely rigid tool. For all phases of boring and internal threading this vertical adjustment permits proper centering rapidly and assures perfect performance. The "V" block bar clamping construction grips the bar at four points which climinates vertical or horizontal movement, thus preventing chattering. Made in 4 sizes for bars 1/2" to 2-1/4" diameter.





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DATA ON "VULCAN" CHAIN PIPE TONGS

There are 6 types of Williams' Tongs, each offering certain advantages for particular classes of work. A knowledge of the features of these various types will enable users to better select the most efficient and economical type for the work at hand.



"Vulcan Superior": A universal service tong for both pipe and fittings. Has Reversible pipe-and-fittings jaw. Seven sizes, up to 12" capacity.



"Vulcan": The original "Vulcan" Pipe Tong—still the favorite oil-field tongs for general work. Chain swings from center and can be used on either side of the jaw. Eight sizes, up to 18" capacity.



"Vulcan Supertong": Same design as "Vulcan" but forged from alloy and high-tensile steel. Provides 50% greater strength than "Vulcan" with no increase in bulk or weight. Eight sizes, up to 18" capacity.



"IMPROVED VULCAN": Same as "VULCAN" except jaws are double-ended and reversible, providing double service life. Seven fizes, up to 12" capacity.



The "V" recess in "Vulcan Superior" jaws assures quick, positive grip on fittings,

Types of "Vulcan" Chains

While "Vulcan Superior" and "Vulcan" Tongs are furnished with either Flat Link or Cable Chain, all other types have Flat Link Chain only.

There are three types of Flat Link Chains for Williams' Tongs—"STANDARD", "XTRASTRONG" and "SUPERCHAIN". "Standard" Chains are regularly furnished with all except "Supertongs" but "Xtra-Strong" Chains, providing approximately 40% greater strength, can be supplied at additional cost. "VULCAN SUPERTONGS" are regularly furnished with "Superchains". Every "VULCAN" Chain, regardless of type, is individually proof-tested on a standard tension machine to two-thirds of its breaking strain.

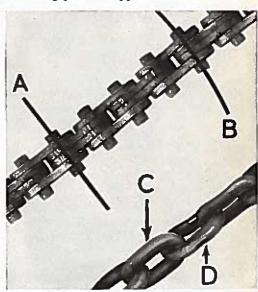
Use and Care of Tongs

In using Chain Pipe Tongs the best gripping position is that which is midway of

the jaw teeth, or rearward therefrom. The bending of the tong handle under load is not evidence of a defect. Such bending is intended to act as a warning and "safety valve" in advance of breakage of chain, which would incapacitate the tool.

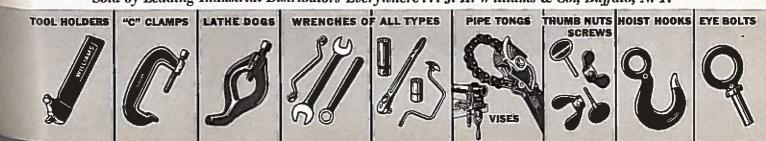
In Flat Link Chains on tongs, an occasional inspection of the first two or three rivets and links adjacent to the swinging, or anchor link should be made, since the load is greatest at that point. Badly bowed, or curved rivets indicate that the chain has been loaded almost to breaking strength and is probably unsafe.

In Cable Link Chains, the links give warning by stretching and pulling "rigid" if the breaking point is approached.



- A. Straight rivet indicates chain is safe.
- C. Safe link indicated by normal shape.
- B. Curved or bowed rivet—unsafe.
- D. Link stretched or pulled "rigid"—unsafe,





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WILLIAMS' "SUPERSOCKET WRENCHES

Since socket wrenches, today, play an important part in the servicing as well as manufacture of mechanized war equipment, a general knowledge of standardized types is desirable. Williams' "Supersocket" Wrenches include 5 separate and distinct patterns of standard drive sockets, each with its full assortment of handles and parts. A brief description of each pattern follows, together with information on the type of service for which it is designed.

Midget Pattern

1/4" Square Drive. Openings, 3/16" to 7/16"







Slim, straight wall sockets for electrical and all delicate adjustments. Ideal for magnetos, timers, generators, wiring connections, radios, carburetors, etc.

Bantam Pattern

3/8" Square Drive. Openings, 1/4'' to 3/4''









8-point Extra Deep



12-paint Universal

Light, but strong, straight wall sockets with thin walls for use in close quarters. Universal sockets are fitted with spring tension to maintain desired operating angle. Recommended for aviation and general service.



Standard Pattern 1/2" Square Drive. Openings, 7/16" to 1-1/4"







The 12-point sockets in this pattern have straight, thin walls. Those with square openings are the Taper Nose type. Extra Deep sockets have cross hole for use with a bar. Recommended for industrial and general service.

TYPICAL HANDLES & PARTS

5.110P

5-140 S51: Reversible Ratchet Handle S40, S41 & S42: Flex Handles S20A: Sliding T Handle S11130: Adapter, S140: Univ. Joint S10 & S15; Speeder Handles S110P & S115P; Extensions S50: Ratchet Handle S57: Torque "Measurrench"

Heavy Duty Pattern 3/4" Square Drive.

Openings, 7/8" to 2-1/4"





12-point Extra Deep

Designed for harder service where more strength is required than on the "everyday" job, this pattern provides ample strength without clumsy bulk.

Extra Heavy Duty Pattern

1" Square Drive. Openings, 1-1/16" to 2-3/4"

Ruggedly designed for the toughest kind of service. Sockets are all cross-drilled to receive sliding handle, which minimizes tendency of socket to "tip" under extreme leverage." Lock-Socket" device climinates danger of sockets being detached in service. Ideal for all



12-point Regular

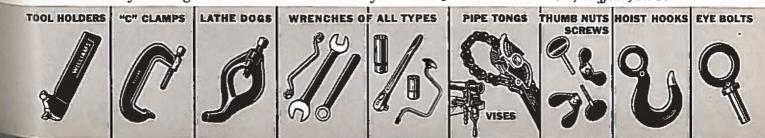
extremely heavy work including tanks and other mechanical field equipment.

General Characteristics

Speed and Safety are inherent socket wrench advantages. "Supersockets", with their innumerable combinations of handles, accessories and drive adapters, provide an extremely flexible wrench system that is speeding war production and the servicing of fighting equipment for land, sea and air.

Williams' "Supersockets" are sold singly and in complete Sets. Write for booklet, "How to Select and Use Wrenches."





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DATA ON "VULCAN"

LATHE DOGS

Lathe Dogs provide a simple and flexible means of driving shaft and other betweencenters work on engine and semi-automatic lathes. Their universal use makes them an important metal-turning accessory and makes a knowledge of available standard types desirable at this time.

Williams' "Vulcan" Lathe and Milling Machine Dogs cover a wide range of shop, tool-room and manufacturing requirements. All are drop-forged from a strong, tough grade of carefully selected steel. Screws are of special steel, hardened and tempered, and are threaded U.S. Standard with the exception of those above 1" diameter which have eight threads to the inch. Both "Safety" and "Non-Safety" types, as

illustrated, are available and interchangeable.

Safety screws (& wrench) are furnished unless otherwise specified.



"Vulcan" Lathe Dogs with Bent Tail and one Screw



Nos. 1 to 13 inclusive, 3/8" to 5" capacity Nos. 112 to 114 inclusive, 4" to 6" capacity

Safety for the operator is an important feature of this "Vulcan" Dog equipped with a square recess "safety" screw. There are no sharp projections to injure the operator's hands or catch his clothing.

"Vulcan" Heavy Service
Lathe Dogs
with Bent Tail and two Screws



"Vulcan" Clamp Lathe Dogs



The case-hardened nuts with which the Screws of this clamp are equipped, provide a ready means of arrangement for the minimum projection of screws beyond the body of dog and thus lessen danger to the operator when tool is in use. Nos. 61 to 64 inclusive, 1\%" to 3\%" capacity

"Vulcan" Milling Machine Dogs with Flat Bent Tail and one Screw



Designed for taper work carried between centers on milling machines, the flat tail works in the head-slot without the backlash unavoidable in Dogs with taper tail. Serves also as a heavy pattern lathe dog. Heads are of sufficient size to permit re-tapping for larger size screws, as the

threads wear. Non-safety screws only are furnished with "Vulcan" Milling Machine Dogs. They are threaded U.S. Standard and made of a special grade of steel, hardened and tempered.

Nos. 42 to 48 inclusive, 1/2" to 2" capacity



Sold by Leading Industrial Distributors Everywhere . . . J. H. Williams & Co., Buffalo, N. Y.

TOOL HOLDERS "C" CLAMPS LATHE DOGS WRENCHES OF ALL TYPES PIPE TONGS THUMB NUTS SCREWS SCREWS CREWS CO., Buffalo, N. Y.

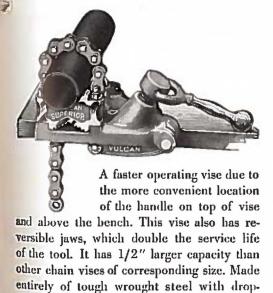
S' TOOLS AID WAR PRODUCT

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DATA ON "VULCAN" **CHAIN PIPE VISES**

Williams' "Vulcan" Chain Pipe Vises are available in two basic types: "Vulcan Superior", with adjusting handle on top, and "Vulcan", of conventional design with handle below. In addition, the "Vulcan" Clamp Kit Vise provides a portable tool which may be quickly attached to bench, truck platform, post or other support on the job. Williams' line also includes the "Vulcan" Vise Standa complete unit combining Vise, Stand and Pipe Bender. A description of the construction and utility features of these Vises is given here to facilitate selection of the most efficient type for any specific service.

"VULCAN SUPERIOR"



forged base, jaws, handle and chain arm.

Two sizes, for pipe 1/8" to 41/2".



The convenient location of "Vulcan Superior's" handle, " above the bench," is a great timesaver.

"VULCAN"



The original chain pipe vise and a favorite with pipe workers for more than thirty years. A light, compact, positive-gripping tool suitable for a wide variety of pipe work. Made entirely of wrought steel the same as "Vulcan Superior". Available in four sizes, for pipe 1/8" to 8".

"VULCAN" CLAMP KIT VISES

Extreme portability is a feature of this vise which weighs only 5-3/4 lbs. Can be carried to job in tool kit and quickly secured to bench, truck platform, post or other support without use of bolts or screws. The efficient clamping device is integral with the malleable



iron base. The drop-forged jaws, nut and handle, and the chain are interchangeable with similar parts of "Vulcan" Vise, No. 1. Made in one size only, for pipe 1/8" to 2".

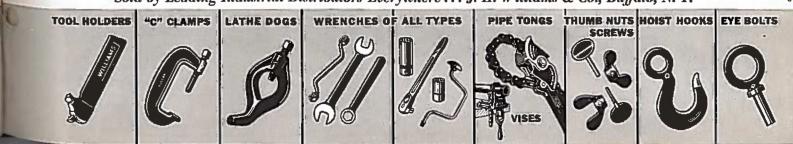
"VULCAN" VISE STANDS



A 3-in-1 unit combining Vise, Stand and Pipe Bender. The high-grade

malleable iron base, designed for severe service, is equipped with oil can recess, tool slots, and rear pipe support. The Pipe Bender handles pipe up to 3/4". For easy carrying, legs fold and secure with tie chain. Vise parts are interchangeable with "Vulcan" No. 1. Made in one size only, for pipe 1/8" to 2".





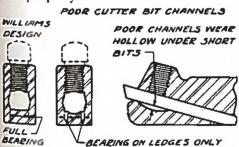
MS' TOOLS AID WAR PRODUCTIO

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DATA ON WILLIAMS' TURNING-TOOLS

Since metal turning constitutes a major operation in our war production program, consideration of available tools for this purpose is timely. The Tool Holder system offers definite advantages over solid, forged tools for lathe, planer, shaper, etc. Greater convenience, efficiency and economy result with the use of properly designed Tool Holders, which save practically all waste of costly high speed steel, eliminate all dead stock of heavy forged tools, do away with all blacksmith labor and much grinding, and reduce lost man and machine hours waiting for tools substantially to zero.

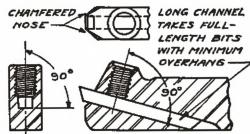
Tool Holders, however, to satisfactorily replace solid forged tools, must be engineered to withstand the severe treatment which modern metal turning imposes on the cutting tool. Williams' Holders are dropforged from a specially selected grade of steel, treated and hardened to develop maximum resistance to all wear and insure a hard rigid seat for the cutter directly under the holding or locking device. This tends to prevent cutter breakage which is due largely to the recess or pocket formed by short bits being forced into the cutter seat of the holder when the shank has not been properly hardened.





The bottom face of the shank of all Williams Holders is rechecked after heat treating to insure a flat, square surface for the holder to rest on.

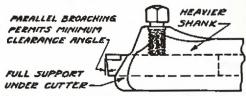
In Williams' Turning Tool Holders the nose is chamfered to permit convenient use in close quarters where space is limited. Set Screws are located at exact right angles to the cutter bit channel to provide full contact of the point of the screw with the cutter bit and insure maximum holding power. Screws and tapped holes are held to the close fits essential for long life under gruefling tool holder service.



Sketches above illustrate a straight shank Williams' Turning Tool Holder. Note that the extremely long cutter bit channel extends thru the bottom face of the shank, providing maximum entry for the cutter bit. This feature assures minimum overhang when a full-length bit is used, thus reducing the danger of cutter bit breakage.

Carbide Turning-Tool Holders

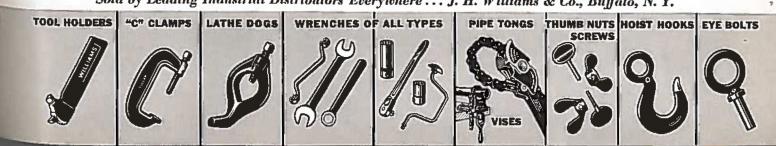
Since tungsten carbide cutters approach a diamond in hardness (88-92 Rockwell A), the brittle nature of this material makes it absolutely essential that the cutter bit be held rigid and the cutting edge supported as much as possible.



To provide a rigid tool and assure maximum support of the cutter, the shanks of Williams' Carbide Holders are made heavier and longer than regular Turning-Tool Holders of equal cutter capacity. The cutter channel is broached parallel with the base of the shank rather than at the usual 15° angle. The parallel broaching of the cutter slot permits proper grinding of the cutter so as to give maximum support to the cutting edge.







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DATA ON WILLIAMS' "SUPERIOR" WRENCHES

 Since Williams' "Superior" (Carbon Steel) Wrenches provide exceptional strength with minimum use of critical materials, a review of standard available types is timely. "Superior" Wrenches are approximately twice as strong as earlier carbon steel wrenches of our manufacture. Comparative tests demonstrate that they average (throughout all patterns and sizes) 93% as strong as our corresponding alloy steel "Superrenches", which we feel are among the strongest wrenches ever manufactured commercially.

A description of the most generally used "Superior" wrench types follows. More detailed information is contained in Williams' Wrench Booklet, No. A-81, which will be mailed for the asking.

Engineers' Pattern

> 15° Angle, Double Head. For general service.

Size range, 5/16" to 5-3/8" openings. Also single head style, 3/16" to 7-5/8".

Check Nut or "Thin" Pattern

15" Angle, Double Head. For Check, Jam or Lock Nuts, etc.

Size range, 13/32'' to 1-1/2'' openings. Also single head style, 7/16'' to 1-11/16''.

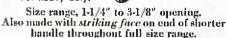
Hex-Box, Regular Pattern

15° Angle, Single Head. For general service.

Size range, 13/32" to 4-5/8" opening. Larger sizes, from 3-3/8" to 4-5/8" opening, are also furnished with striking face on end of shorter handle,

Hex-Box, Heavy Pattern

15° Angle, Single Head. For heavy duty.





Set Screw Pattern



Size range, 3/16" to 1-1/8" opening. Also single head style, 3/16" to 1-1/8".

"S" Pattern

22-1/2" Angle, Double Head. For Standard Nuts and Cap Screws.



Size range, 5/16" to 2" opening,

Machine Pattern



Straight Opening, Dbl.Hd. Extra heavy for Planers, Milling Machines, Lathes, Drill Presses, etc.

Size range, 3/8" to 1-7/16" opening.

Tool Post Pattern





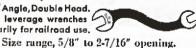


Nos. 554 to 557, for set screw sizes (both ends)

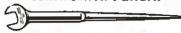
7/16" to 3/4". Nos. 562B to 568D, openings 5/8" to 2". Same opening both ends.

Heavy "5" or Car Pattern

221/2" Angle, Double Head. Long leverage wrenches primarily for railroad use.



Construction Pattern



15" Angle. Straight handle. Deep opening for square nuts, and tapered handle for lining-up bolt holes. Size range, 7/16" to 2" opening,

Structural Pattern



Straight opening. Offset handle. Deep opening for square nuts, tapered handle for lining-up belt holes. Size range, 7/16" to 2" opening.

Face Spanners



For general service.

Size range, 1" to 4" C to C of pins, in 1/4" multiples, Also Adjustable Face Spanners in 3 sizes with 2, 3 and 4" capacities,

Pin Spanners

For general service.



Size range, for circle diameters 1" to 6".

Hook Spanners



For Taper Nose Lathe Spindles and general service

Size range, for circle diameters, 7-3/8", 9-1/4" and 12-1/2". Also Adjustable Hook Spanners in 3 sizes for circle diameters ranging from 3/4" to 4-3/4".

Pin Handle Sockets

With Hex or Square Opening for general service.

Size range: Hex openings 5/16" to 2-3/8". Square openings, 1/8" to 2".



Offset Sockets

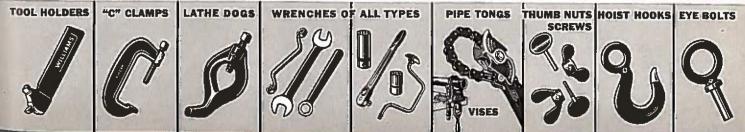


With Hex or Square Opening for general service.

Size range: Hex openings, 5/16" to 2-3/8", Square openings, 1/8" to 2".



for over half a century of DROP-FORGINGS and DROP-FORGED TOOLS



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WILLIAMS' TOOLS AID WAR PRODUCTION



SPEED. Much time is saved on this machine assembly job with this "Supersocket" combination. The operator quickly tightens a long row of cap screws while standing creet. Wrench assembly consists of S15P Speeder Handle, S110P Extension Bar and Socket.

SAVING TIME WITH "SUPERSOCKETS"

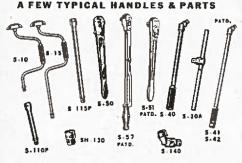
• Detachable Socket Wrenches offer two inherent advantages which should not be overlooked today. Because of their basic design which provides for the assembling of the various components, Williams' "Supersockets" permit the user to assemble what amounts to a special wrench for the particular job at hand. Thus a faster, and often safer, wrench is provided as shown in the several Socket Wrench applications illustrated. Vital man-hours can be saved on many manufacturing, maintenance and repair operations by the use of a suitable "Supersocket" combination.



OBSTRUCTIONS like this would present quite a problem for any other type of wreach, and would undoubtedly require removal of the bracket in the foreground. Wreach assembly consists of S51 Ratchet and Socket. This Ratchet will permit rotation of the nut when handle swing is limited to as little as 30°.



SAFETY. A slip of the wrench could be serious for this millwright working on an overhead lineshaft. His "Supersocket" Wrench not only gets to an awkwardly-placed nut but, in completely encasing it, makes slippage practically impossible. Wrench assembly consists of \$20A Sliding T Handle and Socket.



A FEW TYPES OF SOCKETS

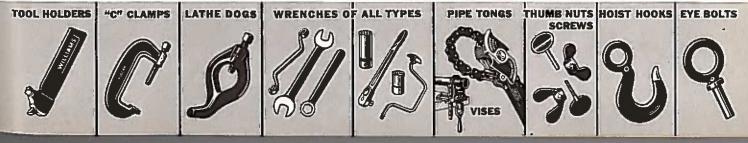


Williams' "Supersockets" are made in 5 patterns, Sold singly and in complete sets.





HARD-TO-REACH places are "duck soup" for "Supersockets." This workman will save a lot of time that otherwise would be consumed in disassembling the machine in order to reach the particular bolt that needs tightening. Wrench assembly consists of S15P Speeder Handle, S115P Extension Bar and Socket.



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DATA ON "VULCAN" EYE BOLTS



 Eye Bolts are used extensively to facilitate the moving, installation and handling of machines, equipment, gigs, etc. Many designers place Eye Bolts at strategic locations on their machines to eliminate hazardous stresses that would cause torsional weave or misalignment of critical sections or surfaces. In addition to these common industrial uses, Eye Bolts are today widely used on such war equipment as guns, tanks and boats for lifting and towing purposes. Eye Bolt failure, in addition to endangering life, may cause damage to delicate or costly mechanisms. Strength and Safety are therefore the fundamental essentials of Eye Bolt design.

Williams' "Vulcan" Eye Bolts are weldless, being drop-forged from a solid blank of carbon steel. After forging they are heat-treated to further increase their strength and toughness and reduce liability of breakage. Every "Vulcan" Eye Bolt is then individually proof-tested on a standard tension machine to fifty percent beyond its rated "safe working load." Each Eye Bolt so tested and approved is stamped with the circular identifying mark shown in the illustration at left.

The following data is intended to help users in the selection of available standard patterns and sizes. These "Vulcan" Eye Bolts can be furnished blank, from stock. Plain and Shoulder Patterns are carried in stock threaded U. S. Std., but Miscellaneous Patterns must be threaded to order.



SHOULDER PATTERN "VULCAN"

No.	Shank			Eye, D	iameter	Capacity	
	Diam.; Nomi- nal Hough Size; Blank	Std. Lgth. under Shide. Blank and Thd.	Max- imum Lgth. in Stock; Blank	Inside	Outside	of 200 Safe Work- ing	Break- ing Strain, Appra.
21	1/4	1	3	3/4	1 3/16	.2	1.5
22	5/16	1 1/8	4	7/8	1 7/16	.4	2.
23	3/8	1 1/4	4 1/2	1	1 21/32	.7	3.
24	7/16	1 3/8	4 1/2	1 3/32	1 27/32	L.	4.
25	1/2	1 1/2	4 1/2	1 3/16	2 1/16	1.3	5.
26	9/16	1 5/8	4 1/2	1 9/32	2 9/32	1.5	6.
27	5/8	1 3/4	4 1/2	1 3/8	2 1/2	2.	8.
28	3/4	2	5	1 1/2	2 13/16	3.	12,
29 30 31 32	7/8 1 1 1/8 1 1/4	2 1/4 2 1/2 2 3/4 3	5 5 6	1 11/16 1 13/16 2 2 3/16	3 1/4 3 9/16 4 4 7/16	3.5 4. 5. 7.5	16. 20. 23. 33.
34	1 1/2	3 1/2	6 6	2 1/2	5 3/16	9.	42.
35	1 3/4	3 3/4		2 7/8	6 1/16	11.	53.
36	2	4		3 1/4	6 7/8	13.	68.



PLAIN PATTERN "VULCAN"

No.		Shank		_ Diame	Capacity		
	Diam.; Nom- inal Rough Size; Blank	5td. Length under Eye, Blank and Thd.	Max- imum Length in Stock; Blank			Blanks; Total of 2000 lbs.	
				Inside	Outside	Work-	Break- ing Strain, Appra
3 4 5 6	3/8 7/14 1/2 9/16	1 1/4 1 3/8 1 1/2 1 5/8	4 1/2 4 1/3 4 1/2 4 1/2	1 3/32 1 3/10 1 9/32	1 21/32 1 27/32 2 1/16 2 9/32	1. 1.3 1.5	3. 4. 5. 6.
7 8 9	5/8 3/4 7/8	1 3/4 2 2 1/4 2 1/2	4 1/2 5 5 5	1 3/8 1 1/2 1 11/16 1 13/16	2 1/2 2 12/16 3 1/4 3 9/16	2. 3. 3.5 4.	8. 12. 16. 20.
11 12 14 15	1 1/4 1 1/4 1 1/2 1 3/4	2 3/4 3 3 1/2 3 3/4	5 6 6	2 2 3/16 2 1/2 2 7/8	4 4 7/16 5 3/16 6 1/16	5. 7.5 9. 11.	23. 33. 42. 53
16 17	2 1/2	4 5	6	3 1/4	0 7/8 8 9/16	13. 16.	68 85,



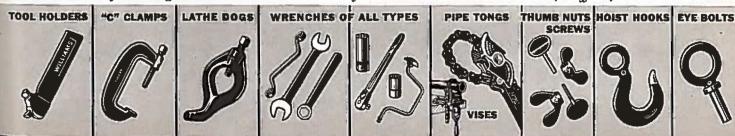
TYPE

MISCELLANEOUS PATTERNS

These two styles are carried in stock blank (not threaded) in the following shank dimensions:

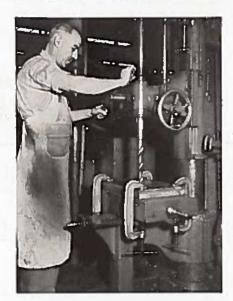
Type A, $1/4" \times 3/4"$ to 1-1/16" x 4-1/8" Type B, $1/4" \times 1/2"$ to 1" x 2-3/4"





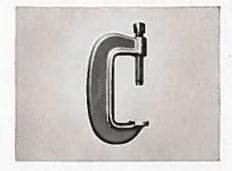
HUWAND WHI

WILLIAMS' TOOLS AID WAR PRODUCTION



With "C" Clamps now widely used in many phases of war industry and construction, information on the various standard types is timely. Williams' Clamps are all dropforged from selected steel and heattreated. Screws are made of special steel, hardened and tempered. A description of the various Williams' patterns, for light, medium, heavy and special duty, follows:

WILLIAMS' "VULCAN" for heavy service

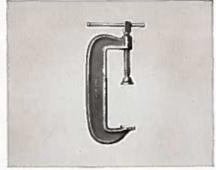


11 sizes, with maximum capacities from 3/4" to 12-1/2". Long screws can be furnished providing a minimum capacity of 0. Screws threaded U.S. Std.

"C" CLAMPS

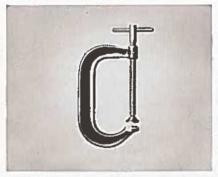
WILLIAMS' "AGRIPPA"

for general service



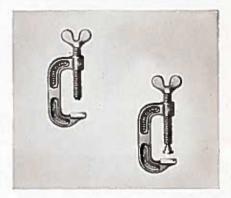
8 sizes, with maximum capacities from 3" to 18". Fitted with dropforged swivel and screws having sliding pin handle, and threaded U.S. Std.

WILLIAMS' "DEEP THROAT" for light duty and welding



7 sizes, with maximum capacities from 2" to 12". Furnished in two finishes: Standard for general service; Spatter-Resisting for welding, completely cadmium-plated to resist adherence of welding spatter. Screws have special thread for strength and rapid adjustment.

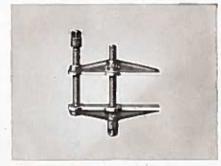
WILLIAMS' "VULCAN" TOOL-MAKERS CLAMPS



Furnished in 2 types: with plain and with swivel screw. Each type in 4 sizes, with maximum capacities as follows: plain screw, 1" to 4-1/4"; swivel screw, 3/4" to 4". All screws have wings shaped to permit use of lever in tightening. U.S. Std. thread.

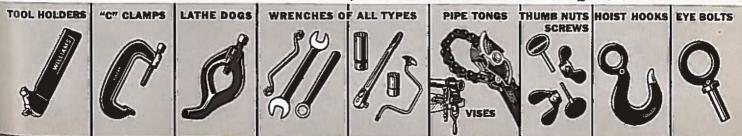
WILLIAMS' "VULCAN" PARALLEL-JAW CLAMP

for Machinists' use



4 sizes, with maximum capacities from 1-1/4" to 4-1/4". Screws threaded U.S. Std.



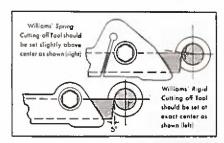


TUTTAND TITT



With Williams' Spring Cutting-Off Tool Holder, feed can be applied automatically leaving operator free to watch and thoroughly lubricate the work.

 Williams'Spring Cutting-Off Tool Holder makes comparatively simple a lathe operation normally one of the most difficult. Several advantages result from the "goose-neck" design of this Holder which automatically provides relief from any sudden or excess pressure on the cutter blade. Even an inexperienced operator can cut off work considerably out-of-round without chatter. "climbing" or damage to either tool or work. The shock-absorbing qualities of this Spring Head, likewise, tend to protect lathe bearings and journals and will definitely improve the quality of work done on old and "loose" lathes. Only with this type



USE OF WILLIAMS' CUTTING-OFF TOOL HOLDERS

of Spring Holder can the automatic cross feed be used for cutting-off operations.

In setting-up, the spring cutting-off tool should be set slightly above center. A rigid cutting-off tool, however, should always be set on exact center. See drawing at lower left. Cutters may be sharpened by grinding the end of the blade—usually to an angle of 5°. The sides of Williams' blades never need to be reground since they have sufficient taper throughout their length to provide side clearance. The work should be flooded with oil when cutting off steel. No lubricant is necessary with cast iron or nonferrous metals.

WILLIAMS' SPRING CUTTING-OFF HOLDERS



Straight Shank Pattern Four sizes, 3/8 x 31/32" to 3/4 x 1-5/8".



Right Hand Offset Pattern Five sizes, $3/8 \times 13/16^\circ$ to $3/4 \times 1.5/8^\circ$.

The above illustrations show two patterns of Williams' Spring Cutting-Off Tool Holders—Straight and Right Hand Offset—and list the sizes in which these tools are available. The same blade fits either pattern in corresponding sizes.

Below are illustrated three patterns of Williams' Cutting-Off and Side-Tool Holder, and sizes listed in which each is available. This Holder accommodates either a cutting-off or side blade without any adjustment. It is a rigid rather than spring tool. Its cutting-off blade is interchangeable with Williams' Spring Holder. Both these types of Williams' Holders employ a positive cam lock to hold their blades in place, which is both quick-acting and rugged.

WILLIAMS' CUTTING-OFF AND SIDE-TOOL HOLDERS



Right Hand Straight Shank Pattern



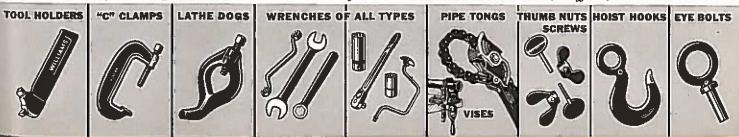
Right Hand Offset Pattern



Left Hand Offset Pattern

All patterns are made in seven sizes, $5/16'' \times 13/16''$ to $7/8'' \times 1-3/4''$.





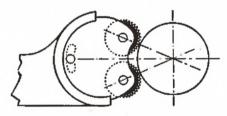
TUTTAND TITT

WILLIAMS' KNURLING TOOL HOLDERS

• Knurling differs from most lathe operations in that it is not a cutting. but rather an embossing or extruding operation. Knurling actually increases the diameter of the work.

Whenever possible, work to be knurled should be held between centers. Long and extremely light pieces should be supported with a Steady Rest. In other words, the work must be prevented from springing away from the cross pressure of the knurling rolls.

Set the Knurling Tool Holder well back in the Tool Post and so positioned that top and bottom rolls are equidistant above and below center of the work, as sketched below. Tool Post screw should be securely tightened.



With lathe in slow speed, begin at Tailstock end so as to feed towards Headstock. Force the Knurling Tool into the work—abruptly—to approximately full depth of the knurl. This should be accomplished before rolls can make one complete revolution. If the knurling is to start at the extreme end of the work, start the Tool so that only half the width of the roll face contacts the work when forced in with the hand cross feed.



The self-centering Head of this Williams' No. 1-K Holder assures equal pressure of both Knurling Rolls against the work.

Engage the longitudinal power feed and let the Tool travel across the face of the work for desired distance. Now reverse direction of carriage travel, without removing Tool from the impression, and feed back across the face of the work. Slight additional cross feed may be applied, as the carriage reverses, to further sharpen knurling.

Some machinists use oil when knurling—others prefer air pressure so as to blow all chips clear. Illustration below shows sample of knurling by both methods. Actually both samples are of about equal quality.



Unretouched photo of work sample. Air pressure used on knurling at left end—oil on knurling at right. Piece is 3/4" mild steel bar; coarse knurled with Williams' No. 11-K Holder; spindle speed 250 R.P.M.; both ends knurled with one pass up and reverse.

WILLIAMS' KNURLING TOOL HOLDERS



Nos. 00-K to 2-K, 4 sizes, 5/16" x 3/4" x 5" to 5/8" x 1-3/8" x 7-1/2" with self-centering Head and fitted with ONE pair of knurls.



Nos. 11-K and 12-K, 2 sizes, 1/2" x 1-1/8" x 6-5/8" and 5/8" x 1-3/8" x 6-5/8" with Revolving Head and THREE pairs of knurls, for fine, medium and coarse work.

KNURLS FOR WILLIAMS' HOLDERS





Both patterns furnished in pairs, to fit standard makes of Knurling Tools, in 3 different pitches: Coarse, 14 pitch; Medium, 21 pitch; Fine, 33 pitch.



Sold by Leading Industrial Distributors Everywhere . . . J. H. Williams & Co., Buffalo, N. Y.

TOOL HOLDERS "C" CLAMPS LATHE DOGS WRENCHES OF ALL TYPES PIPE TONGS THUMB NUTS SCREWS SCREWS CREWS COREWS C